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Introduction,
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2014-15 proved the most productive year to date for undergraduate research at VSU and for the *Omnino* journal. The editors received a record number of submissions and we are pleased with the outstanding quality of research found in the pages of this year's volume 5. We are also proud of the wide array of academic disciplines represented in the journal. In this volume, we showcase research from numerous departments, including Biology, Communication Arts, English, History, Math and Computer Science, Philosophy and Religious Studies, and Political Science. To be sure, such a range of contributions is a multidisciplinary feat of which VSU can be proud.

As always, the student editors and I offer our sincere gratitude to all of the students who submitted their research to *Omnino*, to the faculty referees who provided their expertise and time in reviewing submissions, and to the faculty mentors who guided students in their research and writing. We are also grateful to VSU for the funding that makes possible this unique display of the best research generated by our undergraduates.

We welcome submissions for our forthcoming volume 6. Each submission will be refereed by two VSU faculty members in an anonymous, double-blind review process. We publish essays from every field of research at VSU, and we invite undergraduate students to refer to our submission guidelines at https://www.valdosta.edu/colleges/arts-sciences/english/student-resources/student-publications/omnino/submit.php.

Does the Bible Prohibit Homosexuality?
An Exegetical Approach to Genesis 19:4-9 and Leviticus 18:22; 20:13

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Homosexuality is a controversial issue within various religious traditions today. In an effort to further this discussion, this paper will examine Genesis 19:4-9 and Leviticus 18:22 and 20:13[1], three passages often used to justify the condemnation of homosexuality. Guided by the social constructionist model and its understanding of sexuality, I will assess whether these texts definitively prohibit homosexuality.

I. INTRODUCTION

The subject of homosexuality is a present day polemical issue within society and has become a hot-button topic within Christian communities. Defining sexuality is a daunting task since its meaning changes based on the theoretical method being used to define it. For the purposes of this paper, sexuality will be examined from the social constructionist model, which prioritizes the relationship between the individual and society to show that the meaning attached to sexuality is embedded in specific historical, political, and social practices.[2] Using the parameters of the social constructionist model, greater consideration is given to how culture and socialization directly affect how an individual's sexual desires,

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[1] All biblical passages employed in this paper will be from the Oxford NRSV, Michael D. Coogan, ed., *The New Oxford Annotated Bible, New Revised Standard Version With The Apocrypha, An Ecumenical Study Bible, Fully Revised 4th Edition* (New York: Oxford).

[2] George Ritzner, *The Blackwell Encyclopedia of Sociology* (Malden, Mass.: Wiley-Blackwell, 2007), 64.

practices, identities, and attitudes are conceptualized and regulated through social institutions such as religion.

Western perception about sexuality is rooted in the Judeo-Christian belief that sin is attached to the act of sex, redeemable only by fulfilling the divine mandate of procreation.[3] From its opening chapters, the Hebrew/Christian Bible has been at the headwater of debate regarding appropriate gender roles, acceptable sexual behavior, and sexual identity. Reverence and obedience to the instructions given in the Bible about proper conduct in the three areas noted above are not foreign to any of the Abrahamic religions, which emphasize a relationship with God by keeping the covenant through abstaining from various practices and being distinguished or "separated" from those who do not refrain.

Chastity, purity, and self-discipline are familiar practices among other religious traditions. The common assumption that the Bible prohibits homosexuality, however, seems to stem from the ambiguous translation of a few specific scriptural passages, raising the question of whether the alleged prohibition against homosexuality actually exists. Moreover, do the cultures of antiquity, in which Christianity is rooted, differentiate between sexual behavior (i.e., fornication, masturbation, rape, etc.) and sexual identity (i.e., heterosexuality, homosexuality, etc.)? Often sexual behavior among Christians is synonymous with the social construction and implications of sexuality. In other words, the behavior is not perceived any differently from an individual's sexual orientation.

Homosexuality has arguably developed into a prevalent civil rights issue within various religions today. Traditionally, Christianity condemns homosexuality as an immoral and sinful practice, which is denounced by God as an abomination. On the other hand, advocates for same sex relationships argue that condemnation from Christians is intolerant, homophobic, antiquated, and Biblically unfounded. In an effort to further this discussion, this paper will take an exegetical approach to Genesis 19:4-9 and Leviticus 18:22; 20:13,—three passages often used to justify the condemnation of homosexuality—and will examine and evaluate both sides of the argument to ascertain if there is a definitive prohibition against homosexuality according to these texts.

II. SEXUALITY IN ANTIQUITY

The idea of sexuality in antiquity differs considerably from sexuality today. Ancient civilizations did not distinguish sexual behavior from sexual identity, per se. The idea that sexual orientation is an inherent and unchanging aspect of one's personality did not

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[3] Ruth Hubbard, *"The Social Construction of Sexuality," in Race, Class, and Gender in the United States* 7th Edition (ed. Paul S. Rothenberg; New York: Worth Publishers, 2007), 65.

emerge until the 19th century.[4] Ancient Greek, Latin, and Native American languages, for instance, do not have a word that can be translated as "homosexual," which indicates that these societies had a different way of categorizing sexual behavior and also supports the idea of sexuality being socially constructed.[5]

Social norms do not easily translate from one culture to another. Translation and understanding of a different culture and time can be biased. There are four cultural categories appearing throughout ancient Greco–Roman civilization that are important to understanding how sexual behavior was conceptualized: (1) honor and shame; (2) procreation; (3) social status; and (4) active and passive. The following paper will first examine these four categories in order to shed light on modern Christian views of homosexuality by offering background and context for the examination of Genesis 19:4-9 and Leviticus 18:22; 20:13.

a. Honor and Shame

Honor and shame is a category used to assess relationships in antiquity. This category can be further divided into two types of honor. The first type of honor is vertical honor, which is unlimited and is accessed through birthright, superior abilities, rank, or service.[6] The second form of honor is horizontal, which is limited and can be won or lost. Since honor was deemed to be in limited supply, in order to acquire more honor, a man had to take it from another man, which resulted in the victim being shamed and dishonored.[7]

The honor and shame category is not just relegated to men in these societies; whereas honor is accentuated for men, shame is ascribed to women. Like honor, shame can be further divided into two categories, positive and negative. Positive shame can be translated as modesty. A woman of shame was the equivalent to a man of honor.[8] Where positive shame was ascribed to a woman based on the restraint of her sexual desires, negative shame was attributed when a woman's sexual behavior manifested itself through illegitimate children or when she could not help affirm her husband's virility due to barrenness.[9]

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[4] Karl Maria Kerbeny (1824-1882) coined the term "homosexual" in a letter to the German minister of justice over a debate regarding a new penal code for the North German Federation about whether to retain criminal codes that made homoeroticism a crime; Francis Mondimore, *A Natural History of Homosexuality*, (Baltimore: The John Hopkins University Press, 1996), 3.

[5] Steven Seidman, *The Social Construction of Sexuality* (New York: W.W. Norton & Company, 2003), 13.

[6] Susan A. Brayford, "To Shame or Not to Shame: Sexuality in the Mediterranean Diaspora," *Semeia 87* (1999): 163.

[7] Brayford, "To Shame or Not to Shame," 166.

[8] Brayford, "*To Shame or Not to Shame,*" 166.

[9] Brayford, "To Shame or Not to Shame," 166.

b. Procreation

Honor and shame had a direct relationship to how men and women interacted in ancient civilizations.[10] A man of honor had to be able to prove his virility by having many children, and a respectably shameful woman engaged in sexual relations with the expressed purpose of procreation and securing her husband's posterity.[11] There was an expectation of men to be unbridled in their sexuality, while the sexuality of women was kept controlled.[12] Although a man's sexual prowess went relatively unchecked, marriage was the only legitimate and acceptable means for procreation.

c. Social Status

In some ancient cultures, a person's social status was the determining factor for what was deemed sexually acceptable. Greek and Roman sexual mores were rooted in social structures. In this way, sex with prostitutes and slaves was conceptualized in terms of the hierarchical structure of Greco-Roman sexual culture.[13] Slaves of either sex were in the lowest stratification and were considered property and spoils of war and contest.[14] Slaves were not permitted to have sexual relationships without the permission of their master, and this proscription was enforced throughout antiquity.[15]

In Ancient Greece, sexual activity with partners of both sexes was acceptable and determined by the social status of each partner. What was considered sexually appropriate and acceptable was not based on gender but the balance of power between the participants.[16] Sexual activity between males of the same social status had to follow specific rules to assure that neither party was dishonored (honor/shame code). The ideal partnership between men consisted of an active older male (erastes) and a passive younger male partner (eromenos).[17] These relationships were not predicated on romantic love, monogamy, or marriage, but on the age and social standing of the partners.[18]

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[10] Brayford, "To Shame or Not to Shame," 165.

[11] Brayford, "To Shame or Not to Shame," 165.

[12] Brayford, "To Shame or Not to Shame," 165.

[13] Louis Crompton, *Homosexuality & Civilization*, (Cambridge, Mass.: Belknap Press of Harvard University Press. 2003), 316.

[14] Sarah B. Pomeroy, *Goddesses, Whores, Wives, and Slaves Women in Classical Antiquity*, (New York: Schocken Books, 1975), 26.

[15] Pomeroy, *Goddesses, Whores, Wives, and Slaves*, 27.

[16] Francis M. Mondimore, *A Natural History of Homosexuality* (Baltimore: The John Hopkins University Press (1996), 7.

[17] Mondimore, *History of Homosexuality*, 9.

[18] The *erates* (active older) was the expected benefactor of the sexual act not the *eromenos* (younger passive). Once the *eromenos* was past the stage of acceptable age, the relations were expected to end, and he was to take a wife and become an *erastes*. The type of intercourse was non-penetrating but intercrural.

d. Active and Passive

In classical Greco-Roman civilizations, the range of acceptable homoerotic sexuality among men varied between cultures.[19] Grecian societies found sexual relationships between masters and slaves inappropriate because the social and economic statuses between the two persons were different. Of note, condemnation was not based on the sex of the partners themselves; an acceptable sexual relationship between males involved two men of the same social status. Sexual relationships between older men and younger free men were accepted if both men were of the same status, with the active/passive roles based on their respective ages.[20]

In Roman societies, sexual relationships between masters and slaves were acceptable based on the active/passive dynamic that required two men to be of different social rank.[21] It was unacceptable for free men of any age who were a part of the same social status to accept a passive sexual role.[22] In Greco-Roman cultures, the man in the passive role was held to the highest scrutiny and criticism. These classical societies' ideas toward sexual relationships between men were not based on the Western Judeo-Christian social construction of relational sexuality,[23] but rather their ancient cultural constructions of masculinity. Their constructions of masculinity place greater emphasis on the status of the superior male, who is considered the aggressive or active male who penetrates but is never penetrated.[24]

e. Sexuality Among the Jews

In antiquity, prohibitions, laws, boundaries, and order marked Jewish traditions, culture, and history. Theologians often discuss these laws as instructions given from God detailing proper orthopraxy for how a covenantal people should relate to God and to each other. However, there are also various scriptural accounts that detail the Jews' proclivity to be influenced by neighboring cultures.

As with Greco-Roman cultures, Jewish culture did not have a category for understanding sexual orientation.[25] Therefore the interpretation of the prohibition of homosexuality as understood through the filter of Western Judeo-Christian orthodoxy,

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[19] Jerome Walsh, "Leviticus 18:22 and 20:13: Who is Doing What To Whom?," *Journal of Biblical Literature* 120 (2001): 203.

[20] Walsh, "Leviticus 18:22 and 20:13," 203.

[21] Walsh, "Leviticus 18:22 and 20:13," 203.

[22] Walsh, "Leviticus 18:22 and 20:13," 203.

[23] Relational sexuality defined as sexual activity is proper to gender-differenced partners and not to same-gender partners.

[24] Walsh, "Leviticus 18:22 and 20:13," 203.

[25] Daniel Boyarin, "Are There Any Jews in "The History of Sexuality?" *Journal of the History of Sexuality* 5 (1995): 333.

which has been argued based on biblical evidence, is in need of further examination.

In his study on the history of sexuality, David Halperin argues that, "sexuality's chief conceptual function is to distinguish once and for all, sexual identity from matters of gender–to decouple, as it were, kinds of sexual predilection from degrees of masculinity and femininity. That is what makes sexuality alien to the spirit of the ancient Mediterranean cultures."[26] Halperin's observation gives credence to those who argue that there is not a prohibition to homosexuality in the Bible based on the differences in conceptualization of sexuality in antiquity. Modern churches that use the Bible to confirm the prohibition of homosexuality often view the social construction and understanding of sexuality through a very different lens. The literal interpretation of scripture coupled with a Western Judeo-Christian social construction becomes the basis for the conservative religious argument against homosexuality.[27] Reading biblical texts as unadulterated and inerrant with constant and eternal application enables members of conservative Christian groups to arrive at unambiguous answers to the question surrounding the reconciliation of sexuality and religion. The Bible contains only a few passages pertaining to homosexuality. The following discussion will involve a close examination of three of the most popular biblical passages used to justify the condemnation of homosexuality by various modern conservative Christian groups: Genesis 19:4-9, Leviticus 18:22 and 20:13.

III. GENESIS 19:4-9 SODOM AND GOMORRAH

Sodom and Gomorrah (Gen 19:4-9) is a popular biblical story that is often referenced by theologians and conservative Christian groups to justify the condemnation of homosexuality. This story is often coupled with a similar incident that occurred in Gibeah in Judges 19.[28] In Genesis 19:4-9, the passage in question centers on three divine messengers who are initially sent to visit Abraham, but who also inform him of their plan to continue on to Sodom and Gomorrah with the expressed purpose of destroying the city (Gen 18:1-22). Upon hearing their intentions, Abraham intervenes and is able to negotiate an agreement of mercy with them on behalf of the cities because his

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[26] David M. Halperin, "Is There a History of Sexuality?" *History & Theology* 28 (1989): 260.

[27] Lesleigh C. Stahlberg, "Modern Day Moabites: The Bible and the Debate About Same-Sex Marriage," *Biblical Interpretation* 16 (2008): 446.

[28] Judges 19 tells of an elderly resident of Gibeah that hosted a traveling Levite, his servant, and his concubine for the night. The inhabitants of the city called on him to send the Levite out "so that we might know him" (19: 22). The elderly host offered his own daughter and the concubine instead. However, the townspeople were not satisfied, so he pushed the concubine outside, where she was raped and abused all night long (19:25). The next day he found her dead on his doorstep.

nephew Lot and his family are inhabitants of the city Sodom. Due to Abraham's intervention, the angels agreed not to destroy the cities if they are able to find ten righteous people within its gates (Gen 18: 20-33).

When the angels arrived at Sodom, Lot sits at the gate, welcomes them, and receives them into his home. While hosting the angels, the men of the city surround Lot's home and request that Lot, "send them out to us so that we may know them" (Gen 19:5). Lot refuses their request, and pleads with the mob to reconsider. He instead makes them a different offer: "...acting so wickedly. Look, I have two daughters who have not known a man; let me bring them out to you and do to them as you please; only do nothing to these men, for they have come under the shelter of my roof" (Gen 19:7-8). In order to protect his guests, Lot offers his virgin daughters to the mob instead, which consisted of old and young men. The mob immediately rejects Lot's offer and instead responds by giving him an ultimatum: "Stand back! ... we will deal worse with you than with them" (Gen 19:9). The mob's threat to defile sexually the two guests now includes an attack on Lot himself for resisting their demands. The narrative then concludes with the demands of the mob unfulfilled because the angels strike the men with blindness so that they are unable to find the door (Gen 19:11). The question that is generally debated among scholars and theologians is whether the sexual sin committed by the men in Sodom is homosexuality. While some have interpreted this passage as a clear and blatant condemnation of homosexuality, others have argued that on a closer reading of the passage new insights and interpretations are not only possible but reflect a more accurate reading.

a. The Actions and Motivations of the Mob

The actions of the mob are certainly suspect and need further investigation since there does not seem to be any clear indication as to the intention or motivation behind their demands.[29] Based on the reactions of the men in Genesis 19:9 ("And they said, 'this fellow [Lot] came here as an alien, and he would play the judge!'"), some scholars including S.A. Meier and Scott Morschauser, have suggested that their actions were influenced by a concern for allegiance. Given that Lot was not a native of the land, some have questioned whether the demands of the mob were motivated by their desire to test Lot's allegiance to them and the city. Other questions that are not clearly answered by the narrative involving the mob's actions and motivation include why Lot was so adamant to host strangers who were content to stay in the city square. Was Lot's insistence a genuine expression

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[29] It is debated amongst most scholars and theologians whether or not Lot knew the real identity of the messengers although general consensus is that the mob was not aware; S.A. Meier, *The Messenger in the Ancient Semitic World* (Atlanta: Scholars Press, 1988), 89-12.

of hospitality or was he simply trying to gain honor for himself? Finally, why would Lot offer his virgin daughters to a lustful mob of men? The answers to these questions are interrelated and may lead to new perspectives regarding the interpretation of homosexuality in the Bible.

b. The Motivation of the Mob's Request

Genesis 14 provides details about Sodom that are important to the context of the story in chapter 19. Sodom had been at war as part of an alliance of five Canaanite Kings who had been conquered by four Eastern Kings led by King Chedorlaomer in Elam (Genesis 14:1-24). This passage in Genesis 14 gives a wider context to the reason why the mob sought out the guests of Lot, who they more than likely perceived as strangers, and thus a threat to the city.[30] Scott Morschauser, who has studied the theme of hospitality in this passage, argues Lot's position at the gate of the city was significant because it spoke to his social standing within Sodom.[31] Morschauser contends that Lot was entrusted with the security of the city and thus was given an important position connected to the protection and security of the land. Given that Lot's job is to combat spies and saboteurs, his decision to offer hospitality to strangers instead was seen as a betrayal to the people and city and thus was deemed unacceptable to the Sodomites.[32] Morschauser's discussion brings a new perspective to why the mob gathered around Lot's house and insisted these strangers be brought to them. The strangers, and even Lot himself, should be subject to nothing short of mob justice for what is viewed by the mob as reckless behavior and the jeopardization of the city. Morchauser's argument also offers a more meaningful explanation for the mob's indignation toward Lot once he refuses their demands in Genesis 19:9.

c. Lot's Motivation: Hospitality or Opportunity to Gain Honor

It has already been established above that Lot's position at the gate is significant to the context of the story. Lot, as the watchman or gatekeeper, is given the responsibility of securing the city and determining who may gain access into Sodom, which is in a heightened state of awareness because of its recent history of warfare.[33] If Lot is aware of the gravity of his position and the sensitivity of the social climate, one must question why he would allow access to these strangers. Lot seems to be certain of the strangers' trustworthiness

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[30] Scott Morschauser, "Hospitality, Hostiles and Hostages: On the Legal Background to Genesis 19:1-9," *Journal for the Study of the Old Testament* 27 (2003): 466.

[31] Morschauser, "Hospitality, Hostiles and Hostages," 464.

[32] Morschauser, "Hospitality, Hostiles and Hostages," 466.

[33] Morschauser, "Hospitality, Hostiles and Hostages," 467.

given that upon seeing them, he rises to meet them, bows down, and pleads with them to accept his hospitality (Gen 19:1-2), thus fulfilling the social mores of entertaining the sojourner.[34] On the other hand, Lot could have been quite uncertain about the identity of the two strangers, but he wants to ensure no offense would be made against God in the event the strangers were indeed divine. A third possibility for Lot's actions may be related to his civic duty as keeper of the gate; Lot invites the strangers in for the night in order to watch them closely. It must not go unnoticed that Lot's extension of hospitality is restrictive and conditional.[35] Lot specifically restricts their access to the city by offering his home as a place to lodge instead of the square. His offer is conditional based on his instructions that by morning they are to, "… rise early and go on their way" (Gen 19:2). Lot's position suggests that he attempted to maintain his allegiance and responsibility to both his civic duty as a citizen of Sodom and his ethical conviction. Lot's offer can be viewed as very opportunistic, a way of attempting to achieve greater esteem and honor from the inhabitants of Sodom by dominating over these strangers, but also by controlling their movements within the city.

d. Lot's Daughters

Lot seemed to throw haphazardly his daughters into this drama, without any consideration for their well-being; however, there are two schools of thought that emerge from this argument: (1) Lot perpetuates the patriarchal social construction model of the era which marginalized women, thus his daughters' lives are less valuable than the two messengers he is bound by social mores to protect; or (2) Lot offers his two daughters for the two messengers as an even value for value "hostage" exchange. Phyllis Trible, a noted authority on feminist interpretation and literary analysis of biblical stories, suggests that women in the Bible have an inferior status legally and socially. This status is even more diminished based on a woman's relationship to her male counterpart.[36] For instance, the parallel story of Judges 19:1-30 referenced earlier has main characters that include a Levite and a woman that he took as his wife who is said to be a concubine. Trible argues that a male Levite is exalted above other males in society, while a concubine is positioned beneath other women (who are already marginalized).[37] The concubine is virtually a slave, a possession secured by a man for his own purposes. The women in both stories are nothing more than expendable objects offered to

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[34] J.R. Spencer, "Sojourner," *Anchor Bible Dictionary,* 6 (Garden City, N.J.: Doubleday, 1996), 104.

[35] Morschauser, "Hospitality, Hostiles and Hostages," 469.

[36] Phyllis Trible. *Texts of Terror: Literary-Feminist Readings of Biblical Narratives* (Philadelphia: Fortress Press, 1984), 66.

[37] Trible. *Texts of Terror*, 66.

appease the angry mobs to secure the safety of the houseguest.[38] In both stories the intentions of the mobs are considered vile if perpetrated on a man, but considered what is "good in the eyes of men" when done to a woman.[39]

Morschauser acknowledges Trible's position, but suggests that Lot offered his daughters not as sacrifices, but as an act of diplomacy based on hostage exchange agreements common throughout the culture.[40] Morschauser argues that the men who gathered at Lot's house were the governing councils of Sodom, and that Lot offered his daughters with the expectation that no harm would come to them and that they would be returned to him safely upon the departure of the visitors. [41] According to Morschauser, it was customary within a hostage exchange agreement for a hostage to remain in safekeeping until a condition or promise was satisfactorily carried out.[42] Morschauser ascertains that this practice is well established in the Hebrew Bible as is seen in Genesis 42:37, 43:9, and 44:33, which are all accounts from the Joseph narrative. 1 Kings 20:39-40 also references a practice where a person holding a prisoner offers himself as security for the captive until the captive could be safely turned over to the original claimant.[43] Whether Lot offers his daughters as valued tenure or valueless exchangeable commodities, neither reason justifies the acceptable disregard of women that often gets overshadowed due to the question of the sexuality that is at the forefront of the story.

The verb yadha (to know) can be translated "to engage in sexual relations"; it can also be interpreted "to abuse them."[44] The sin of Sodom and Gomorrah can be seen as a violation of the obligation of hospitality toward strangers. It was not until the end of the first century that the identification of sexual sin as the sin of Sodom became widespread in Jewish circles.[45] On the other side of the argument, traditional Christian interpretations of this passage often uses Lot's offering of his daughters as proof that the verb yadha holds a sexual connotation and that the mob's intentions were to rape the messengers for pleasure rather than simply to cause them harm.

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[38] Trible. *Texts of Terror,* 66.

[39] Trible. *Texts of Terror,* 76.

[40] Morschauser, "Hospitality, Hostiles and Hostages," 479.

[41] Morschauser, "Hospitality, Hostiles and Hostages," 475.

[42] Morschauser, "Hospitality, Hostiles and Hostages," 475.

[43] On "laws" of warfare in the ancient world, see the comments of D. Lorton, "*Terminology Related to the Laws of Warfare in Dyn. XVIII,*" *Journal of the American Research Center in Egypt* 11 (1974), 53-56. See EA 252, where Lab'ayu vows to protect prisoners in his charge—in accordance with the king's command—even though they have wronged the former (Moran, Amarna, pp. 305-306 n. 1).

[44] Harry Woggon, "A Biblical and Historical Study of Homosexuality," Journal of Religion and Health, 20 (1981): 158.

[45] Woggon, "Historical Study of Homosexuality," 161.

Simon Parker in his study on homosexuality in the Hebrew Bible suggests three reasons why Lot offers his daughters: (1) the mob's demand was sexual; (2) the mob's demand was not homosexual or the offer of his daughters would have been pointless; and (3) to show there is nothing more sacred than the protection of guest over family.[46] Parker suggests that the mob's intentions are to violate sexually Lot's visitors or the offer of his daughters does not constitute a conceivable substitution.[47] Parker argues that Lot appeals to the sexual nature of the mob without the modern day presupposition of orientation. Parker claims that Lot's offer of his virgin daughters is also evidence that the mob was not made up of homosexuals but was rather a "wilding" crowd out to violate and humiliate any appropriate victims, making Lot's presumption that his daughters would satisfy their request realistic. Lastly, Parker submits that Lot's moral obligation to the visitors exceeded his obligation to his family due to the ethical standards of the treatment of sojourners.[48]

IV. LEVITICUS 18:22 AND 20:13

Biblical antipathy to homosexuality typically centers on Leviticus 18:22, which states, "You shall not lie with a male as with a woman; it is an abomination." Leviticus 20:13 states, "If a man lies with a male as with a woman, both of them have committed an abomination; they shall be put to death: their blood is upon them." Theses two passages discuss the issue of same sex relations, specifically among men; however, the severity of the consequences given in each verse implies that there may be some contextual differences. I offer a discussion of both passages together given that they belong to the same genre of Levitical legislation and regulations regarding proper acts concerning purity.

a. Lyings of a Woman

Several relevant issues are raised in Leviticus 18:22 and 20:13; namely to what does "the lying down of a woman…" actually refer? Leviticus 18:22 seems to address only one male (with the use of "you"), whereas Leviticus 20:13 seems to address both males involved in the sexual act (by concluding "…they have done an abomination"). Saul Olyan has argued that the saying, "the lyings of" is an idiom referencing receptivity during sex.[49] The "lyings of" a man refers to a woman as vaginally receptive to a male penetrator. According to this logic, the "lying of" a woman involves a man placing himself in the woman's

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[46] Simon Parker, "The Hebrew Bible and Homosexuality," *Quarterly Review* 11 (1991): 6.

[47] Parker, "The Hebrew Bible and Homosexuality," 6.

[48] Parker, "The Hebrew Bible and Homosexuality," 6.

[49] Saul Olyan, "'And with a Male You Shall Not Lie the Lying Down of a Woman': On Meaning and Significance of Leviticus 18:22 and 20:13," *Journal of the History of Sexuality* 5 (1994): 184.

position to be penetrated (as a woman by a male) through anal receptivity.[50] According to Olyan, scholars disagree on whether the penetrator or penetrated partner within a male coupling relationship is being addressed in Leviticus 18:22. Olyan argues that the penetrator is the culpable party based on the context of other biblical law where the similar idiom "to lie with" and proscription are used exclusively toward the penetrator. While others claim the responsibility should be placed on the partner that is penetrated, Leviticus 20:13 places the blame for the crime on both parties involved and sentences them both to death.[51]

According to Olyan's study on the meaning and significance of Leviticus 18:22 and 20:13, sexual relationships between men were practiced in neighboring cultures of the Jews such as the Hittites and the Assyrians.[52] The only prohibition among the Hittites was sexual relations between a father and son, while Assyrians prohibited a man from raping another man since the issue at stake in this scenario involved the domination of one man over another. Jacob Milgrom argues that the prohibition on homosexuality is clear and binding, but states its application is strictly limited to males and inhabitants of the holy land.[53] Milgrom interprets the idiom "lying of a woman" as referring to the context of incest spoken of earlier in both chapters 18 and 19 of Leviticus. This would broaden the scope of the idiom to include a ban on a man having sex with his mother, sister, aunt, niece, or daughter.[54]

The Levitical legislations appear to ban only male Jews from male-to-male anal intercourse. The issue seems to concern itself with a man "wasting his seed," which speaks to posterity and purity rather than the sexual relationship itself.[55] Olyan suggests that what appears to be a prohibition against homosexuality may well be part of a broader effort to prevent the mixture of semen and other defiling agents in the bodies of receptive women, men, and animals that results in the defilement of all parties involved.[56] Milgrom adds that the common denominator of the prohibitions throughout the Levitical Code involves the illicit emanation of semen for the purpose of copulation resulting in incest, illicit progeny, or the lack thereof, although there is no proscription against masturbation.[57] Milgrom notes the hypocrisy within the priestly code and raises

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[50] Olyan, "And with a Male You Shall Not Lie," 186.

[51] Olyan, "And with a Male You Shall Not Lie," 184.

[52] Olyan, "And with a Male You Shall Not Lie," 191-194.

[53] Jacob Milgrom, *Leviticus 17-22: A New Translation with Introduction and Commentary* (AYB 3A; New Haven: Yale University Press, 2008), 197.

[54] Milgrom, *Leviticus*, 1566.

[55] Milgrom, *Leviticus*, 1566.

[56] Olyan, "And with a Male You Shall Not Lie," 205.

[57] Milgrom, *Leviticus*, 1567.

questions regarding the blurred line between divine inspiration and priestly preference.[58]

Although this proscription is accurate, it is still far from a definitive biblical prohibition of homosexuality. Neither text restricts any type of sexual relations between women. In this way, homosexuality is not prohibited; rather concern is specific to the sexual relations of men. This is a critical observation to make because the Holiness Codes which include Leviticus 18:22 and 20:13 are very specific and detailed in nature. Their prescription of practices for men and women are purposefully meticulous, reinforcing the idea that if sexual acts between the same sex were really the issue, a prohibition would have been prescribed for both men and women, and not men alone. For instance, Leviticus 18:6 states, "None of you shall approach anyone near of kin to uncover nakedness…" This is a parallel prohibition for both men and women forbidding sexual relationships with blood relatives. Leviticus 18:23 states, "You [men] should not have sexual relations with any animal and defile yourself with it, nor shall any woman give herself to an animal to have sexual relations with it." This parallel prohibition clearly addresses both men and women. Thus it is noteworthy that the prohibition to lie with another man is only prescribed to men. No statement is made about a woman being prohibited from "lying down" with another woman.

If these ancient cultures did not interpret sexuality in the same way as it is understood today, and the prohibitions in Leviticus are not against all male-to-male sexual encounters, then what are the prohibitions really about?

b. Separation Equals Holiness

A core point of the Holiness Codes was to draw a distinction between what was considered clean and unclean and what was priestly/holy versus what was common; the purpose of these boundaries involved recognizing the difference between Godly things (Pure and Holy) and Humanly things (Pure/Impure and Holy/Profane).[59] There were various restrictions about the mixing of bodily fluids like semen and blood during sex, which would require purification rights after a woman's menses. Importance was placed on keeping things within their proper categories in order to preserve posterity. Boundary crossing and hybrids threaten the categories of purity and holiness and perverted the important difference between God and his people.[60] This ideal had less to do with a prohibition against sexuality, but more about keeping the purity of the covenant,

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[58] Milgrom, *Leviticus*, 1568.

[59] Milgrom, *Leviticus*, 1568.

[60] Mary Douglas, *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo* (New York: Routledge, 1966) 4.

which resulted in God's blessing of the land, and therefore the ultimate survival and success of the people.

CONCLUSION

There is currently a range of opinions regarding homosexuality within our society today. There is growing support and optimism even within religious institutions that find it difficult to reconcile its traditional exclusions with modern day inclusions. According to Ellen Davis, the Protestant church has rejected most of the ways Leviticus symbolizes holiness.[61] In her study, Davis argues that the church cannot both justify its departure from regulations of the Bible and still claim its authority for the church.[62] Conservative Christians would argue that Christians today are bound by moral law instead of ceremonial law and that this era is a dispensation of Grace rather than the Law. Again, Davis would argue that the church blurs the lines for its convenience, and the defense of moral law versus ceremonial law makes a distinction that is not found in Leviticus.[63]

While it appears that some denominations in Christianity are making strides towards a more inclusive and modern perspective of homosexuality, there is still a pervasive consensus that homosexuality is against nature and a grave distortion of God's design. The hermeneutical question that must stay at the forefront of the conversation is whether the perceived prohibition against homosexuality is greater than anything else the Bible prohibits. The Bible prohibits sex between a man and woman unless they are married. Entering into this sacred covenant nullifies the prohibition and brings sex into a position of honor. The prevalent conservative perspective regarding homosexuality excludes them from allowing marriage to bridge the gap between what is acceptable and unacceptable based solely on sexual orientation.

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[61] Ellen F. Davis, "Reasoning with Scripture," *Anglican Theological Review* 90 (2008): 516.

[62] Davis, "Reasoning with Scripture," 516.

[63] Davis, "Reasoning with Scripture," 516.

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Additional Evidence for Reciprocal Monophyly of Hagfish Subfamilies Myxininae and Eptatretinae: a Class Exercise in Phylogenetics

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The phylogeny of the fishes in family *Myxinidae*, commonly referred to as hagfish, has been reviewed and recent data has supported new interpretations of the traditional taxonomy. A study by Fernholm et al. (2013) undertook the phylogenetic assessment and evaluation of 33 species of hagfish using two genes, 16S ribosomal DNA fragments and cytochrome oxidase subunit 1 (CO1). The goal of our study was to test the two main taxonomic revisions proposed by Fernholm et al. (2013) as a way of teaching phylogenetic reconstruction in an upper-level elective course. We used a subsample of the same data from the original study, and our independent phylogenetic reconstruction supported the reciprocal monophyly of the hagfish subfamilies *Myxininae* and *Eptatretinae*. However, our reconstruction of CO1 placed the genus *Rubicundus* as sister to *Eptatretinae*, which is in contrast to the placement in Fernholm et al. (2013). Through this exercise, the student-authors gained a thorough understanding of phylogenetic reconstruction and were able to contribute to revisions of hagfish phylogenetics. Specifically, the authors robustly support the reciprocal monophyly of these two subfamilies and suggest that further work is necessary with respect to the placement of *Rubicundus*.

INTRODUCTION

Myxinidae is a family of eel-shaped jawless fishes found in all oceans except the Arctic, Southern Ocean, and the Red Sea (Froese and Pauly, 2012). Hagfish are found in benthic environments and feed on carrion and bottom-dwelling invertebrates (Wisner, 1999). The family Myxinidae includes 79 species of hagfish in six genera (Froese and Pauly, 2012). The genus *Myxine* holds 23 species; the genus *Eptatretus* holds 49 species; the genus *Nemamyxine* holds two species; the genus *Neomyxine* holds one species; the genus *Notomyxine* holds one species; and the genus *Rubicundus* holds four species. Consistent with their primitive morphology, molecular genetic studies have identified hagfish as the sister clade to other vertebrates (e.g., Zintzen et al., 2011; Uchida et al., 2013). Until recently, little attention has been paid to how different species of hagfish are related to one another, and the taxonomy of *Myxinidae* was largely based on phenotypic variations in teeth, gill structures, and color patterns (Fernholm, 1998). However, Fernholm et al. (2013) conducted a phylogenetic analysis of how 33 different species of *Myxinidae* are related to one another, resulting in a new subfamily and reclassification of some species to different genera.

Two subfamilies of hagfish, Myxininae and Eptatretinae, are categorized by the number of pairs of external gill openings (Nelson, 2006). Fernholm et al. (2013) hypothesized that these gill openings correlate to differences in gene sequences from the cytochrome oxidase subunit 1 (CO1) and 16S ribosomal DNA fragments. Fernholm et al. (2013) also suggested that *Rubicundus lopheliae*, a species known

from only a few specimens and found in geographically isolated, cold water reefs, was not included in either traditional clade, but rather as an outgroup to the *Eptatretus* and *Neomyxine/Myxine* clades. While each gene tree and the concatenated dataset yielded a majority-rule tree that supported these changes, Bayesian posterior support values were low for some clades, and the authors failed to test for any evidence against reciprocal monophyly, which would be a useful contribution to hagfish phylogenetics. To fill this gap, the authors (who were students in a phylogenetics course) worked independently to use the same DNA sequences with analogous methods to evaluate support for the findings of Fernholm et al. (2013) and then to combine their phylogenetic reconstructions into a single analysis.

In this study, we tested two hypotheses proposed by Fernholm et al. (2013). First, we tested the null hypothesis that a subsample of the species used by Fernholm et al. (2013) would yield a phylogeny for which the genera *Neomyxine* and *Myxine* would form a clade separately from *Eptatretus*, resulting in reciprocal monophyly Second, we tested the placement of *Rubicundus lopheliae*, which was previously thought to reside within the genus *Eptatretus*, but is now represented as a sister clade to the subfamilies Eptatretinae and Myxininae.

METHODS AND MATERIALS
DNA Sequences and DNA Alignment

A total of 27 different species were evaluated (Table 1), 20 species with DNA sequences for CO1 (cytochrome oxidase subunit 1, mtDNA), as well as 15 species with DNA sequences for 16S (ribosomal DNA, rDNA). The data for these gene sequences were downloaded from Genbank. There were ten species in common between the two genes (Table 1). The sets of gene sequences were combined for CO1 and then separately for 16S into the program GeneDoc v. 2.7 (Nicholas, K.B., Nicholas, H.B. Jr., 1997). The sequences for each gene were then aligned by hand, working towards an alignment with the fewest number of gaps and/or required mutations. Once the finalized aligned sequences were achieved for CO1 and 16S, the 16S dataset was automatically aligned through the CLUSTALW2 web portal (http://www.ebi.ac.uk/Tools/msa/clustalw2/) to identify any alternative alignments, given the general difficulty of manually aligning this gene (see Fernholm et al., 2013). We did not evaluate all 33 species used by Fernholm et al. (2013) due to computational constraints, as this was an undergraduate class exercise. However, our subsample did include representative sampling from all critical genera and clades.

Estimating a Model of Nucleotide Evolution

After the manual alignments were finalized and a single alignment for each gene was agreed to by all eight students, jModelTest2 (Darriba et al., 2012; Guindon and Gascuel, 2003) was used to identify the best model of evolution for each gene (16S and CO1). We identified the best model based on differences in AICc scores (Akaike information criterion corrected for small sample size), provided in the results of the jModelTest2. AIC is a measure of the relative fit of a statistical model for a given set of data, and AICc is AIC with a correction for finite sample sizes. The delta AICc between 0 and 4 expresses the top models, while a delta of 4 or greater differentiates considerably inferior models (Burnham and Anderson, 2002).

Phylogenetic Reconstruction

We used the program suite BEAST v.1.8 (Drummond et al., 2014) to find the tree with the highest likelihood within a Bayesian framework. The aligned gene files were used to create a file in BEAUti. We specified the outgroup (stem) as *Petromyzon marinus*. Under the sites tab the results from jModelTest were used to specify the model of evolution for each gene (see Results). The base frequencies were set to "estimated," the site heterogeneity model was changed in accordance with the gene, and all other aspects were left in default settings. The clock model was set to be "Lognormal Relaxed Clock (uncorrelated)" and the box for "estimate" was checked. The tree prior was changed to "Speciation: Yule Process."

The priors for the first run were left at their default values for the initial run of 15-20 million generations. BEAST log files were checked routinely in the program Tracer v1.6 (Rambaut et al., 2014) to check the priors and monitor progress. If multiple runs had to be completed for either gene sequence, the priors were changed in accordance to the values with the highest likelihood from previous runs provided by BEAST and identified by Tracer. After the effective sample size (ESS) values for each of the priors were greater than 200 (as in Bryson et al., 2014; Zhang and Li, 2013; Reece et al., 2010), the files were run again with the same priors to test for consistency. When all runs for each gene were completed (two replicates by four independent students for each gene), the tree files were combined in LogCombiner v1.8.1 (Drummond et al., 2014) and the burn-in was set to ten percent of each run (10% was visually inspected in Tracer as being sufficient burn-in for each run). This completed file was then put into TreeAnnotator v1.8.1 (Drummond et al. 2014) without burn-in to obtain an annotated Bayesian maximum clade credibility tree, which was visualized in the program FigTree v1.4.2 (Rambaut et al. 2014).

Tests of Reciprocal Monophyly

We evaluated the finding of reciprocal monophyly of the subfamilies Myxininae and Eptatretinae (Fernholm et al., 2013) in two ways. First, we modified our initial XML files created in BEAUti for each gene to include a constraint of reciprocal monophyly for Myxininae and Eptatretinae. We executed a second phylogenetic reconstruction that was identical to our unconstrained reconstruction save for the constraint of reciprocal monophyly (hereafter referred to as "constrained" versus "unconstrained"). After the phylogenetic reconstruction in BEAST was completed for both the constrained and unconstrained gene trees, we compared the likelihoods of the post burn-in (10%) tree samples. Likelihood values were normally distributed, and we assumed that if the distribution of likelihoods from the unconstrained trees was overlapping the distribution of the constrained tree by less than 2.5% (equivalent to a two-tailed t-test with an alpha of 0.5), then the distributions were significantly different. We executed this test for both genes independently. Our second test of reciprocal monophyly was to query the number of trees that violated reciprocal monophyly from the post-burn-in set of equally likely trees for each gene. This was executed using the search for non-monophyly tool in the program TNT (Goloboff et al., 2008).

The placement of *Rubicundus* was evaluated by simply comparing our phylogenetic reconstruction to that of Fernholm et al. (2013). The position of *Rubicundus* in the previous study varied depending on the placement of *Neomyxine* in COI and 16S. In our study, we only utilized sequences for COI, and thus report solely on those results.

RESULTS

DNA Sequences and DNA Alignment:

Twenty-one sequences of a 553 bp fragment of the 16S rRNA and sixteen sequences of a 587 bp fragment of the CO1 gene were represented. These sequences were downloaded from GenBank. Because some species were used for both 16S and CO1 sequences, a total of twenty-seven different species were included (Table 1).

Estimating a Model of Nucleotide Evolution:

We determined that the model of evolution for CO1 was best estimated by the HKY+I+G (Hasegawa-Kishino-Yano) model, while 16S was best estimated by GTR+G (General Time Reversible model). The GTR+G model resulted in a Delta AICc value of 3.873 and therefore was chosen to represent the 16s gene, although TIM2+G or TIM2+I+G have an equally good fit. The HKY+I+G model possesses the lowest AICc value and was chosen to represent the CO1 gene. However, the 5 succeeding models had Delta AICc values less than 4. Table 2 lists the top 5 models for each gene and their Delta AICc scores.

Phylogenetic Reconstruction:

Phylogenetic trees for CO1 and 16S genes were each reconstructed independently twice by each of four students for each gene. Between 15-30 million generations were required to reach stationarity for each gene. A ten percent (10%) burn-in was required. All ESS values peaked over the 200 minimum requirement. All combinations from each respective group were then combined using the program LogCombiner. Figure 1 and Figure 2 display the resulting phylogenetic reconstructions.

Tests of Reciprocal Monophyly:

The number of generations used to reach stationarity was determined by taking the longest number of generations executed during the unconstrained phylogenetic reconstruction, which was 15 million (sampling every 1000 generations) for COI and 30 million (sampling every 1000 generations) for 16S. The species constrained for each gene are noted in Table 1. Both constrained reconstructions reached stationarity well within the allotted generations and had strong ESS values (>200) for all parameters. Figure 3 displays the distribution of likelihood values post-burn-in for each constrained tree. Both the unconstrained gene trees resulted in reciprocal monophyly of the subfamilies. The constrained version of the COI gene tree resulted in a likelihood that was lower and non-overlapping with the likelihood of the unconstrained tree. The 16S gene trees had broadly overlapping likelihoods. Our search for examples of non-monophyly of either subfamily yielded zero examples from the distribution of trees for either gene. These results suggest that both gene trees support the reciprocal monophyly of Eptatretinae and Myxininae, despite some relatively low posterior probabilities at the nodes that encompass each subfamily (Figures 1 and 2).

Our results for COI did not place *Rubicundus* in the same position as the COI reconstruction in Fernholm et al. (2013). Instead of being sister to the Eptatretinae and Myxininae, our phylogenetic reconstruction placed *Rubicundus* as sister only to *Eptatretinae*, although support for these relationships was very weak in both our results and those of Fernholm et al. (2013).

DISCUSSION

Our results show support for the two hagfish subfamilies Eptatretinae and Myxininae to be reciprocally monophyletic. We support designation of the subfamily Rubicundinae (*Eptatretus lophelia*) being a sister clade to the *Eptatretinae* clade, as represented in Figure 1 and Figure 2. A previous phylogenetic analysis of hagfish by Fernholm et al. (2013) found that the two subfamilies *Eptatretinae* and *Myxininae* are reciprocally monophyletic after moving and renaming one Eptatretus species (*Eptatretus fernholmi*) to the Myxinae clade.

The Fernholm et al. (2013) study also proposed a new subfamily, which was previously thought to reside within the genus *Eptatretus*, Rubicundinae as a sister clade to the two existing clades, which is not what we found in our analysis (Figure 2). To ensure the relationships estimated in our initial unconstrained trees were well supported, we estimated a constrained tree with reciprocal monophyly, under the assumption that the constrained and unconstrained topologies would have equivalent likelihoods. In addition, we searched the post-burn-in trees from the unconstrained analysis and found no topologies that violated the reciprocal monophyly of *Eptatretinae* and *Myxininae*. For both genes, we found no evidence for violations of reciprocal monophyly. Therefore, we fail to reject the null hypothesis for 16S and CO1, supporting the reciprocal monophyly of the *Eptatretinae* and *Myxininae* families with a statistical framework that was lacking in the original analysis by Fernholm et al. (2013).

Our analysis of the CO1 gene also supported the newly proposed subfamily, Rubicundinae, as a sister clade only to the Eptatretinae clade as shown in Figure 2. Fernholm et al. (2013) proposed Rubicundinae as being sister to both Eptatretinae and Myxininae (with low posterior support), which is not supported by our findings. There is not any data sampled from the 16S gene for this species in our dataset, and, consequently, the relationship of this subfamily was analyzed using only the CO1 gene. Further research using additional independent loci may resolve the placement of this subfamily.

For the 16S gene, there was difficulty estimating the coefficient of variation (Table 2a). The coefficient of variation determines if the mutations are occurring in a predictable clock-like fashion or if they are occurring randomly. This ESS value is not crucial to this study because mutation rate is not a parameter of interest. However, all other ESS values were estimated with high probability consistently throughout the study for both CO1 and 16S with values greater than 200.

Based on the study by Fernholm et al. (2013), and similar to problems we encountered, the aligning of the 16S genes proved to be more challenging than expected and other alignment software was used. In contrast to our study, Fernholm et al. (2013) specifically used taxa for which both 16S and CO1 were available. For our purposes, we subsampled the taxa for each of the genes. Doing this likely resulted in gaps in our data that may not have been present if we had used the full species complement (which would have been computationally challenging to do in a lab-course setting). The CO1 data presented by Ferholm et al. (2013) was partitioned based on three codon positions and a 4th partition for the 16S data. The 16S sequences are made up of RNA that included loops in contrast to the CO1 codons which are all transcribed. The fact that we did not use a partition of codons may have resulted in slightly different results than those of Fernholm et al.

(2013), which is important because codon partitioning holds certain positions constant while changing others with higher frequency. Regardless, both approaches support the findings that Eptatretus and Myxininae are indeed monophyletic.

Our study examined a subsample of the taxa evaluated by Fernholm et al. (2013) and yielded results to further support the reciprocal monophyly of the two hagfish families, Eptatretinae and Myxininae. The findings from the CO1 gene also supported the subfamily, Rubicundinae, as being a sister clade to Eptatretinae and Myxininae. The methods used in our study differ slightly from those used by Fernholm et al. (2013), but our methods are tests of reciprocal monophyly that strengthen the taxonomic revisions proposed by the previous authors. As discussed in Maddison (1997), sampling only one gene can lead to an incorrect representation of the phylogeny, and sampling multiple genes provides more support for the generated gene tree. It is important to note that Fernholm et al. (2013) did analyze both CO1 and 16S separately, and also concatenated the two genes into one "super gene" for analysis, but in neither case did they test for support for the non-monophyly of either subfamily.

Overall, the student-authors who participated in this study gained an appreciation for phylogenetic reconstruction methods, the various and often equivalent approaches that one can take to reconstruct a phylogeny, and the computational complexity involved in identifying the "best" topology from hundreds of millions of potential topologies. In the course of learning these lessons, they also provided additional support for the taxonomic revisions recently proposed by hagfish researchers.

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FIGURES & TABLES

FIGURE 1. Maximum clade credibility phylogenetic tree of the observed hagfish species using 16s ribosomal DNA.
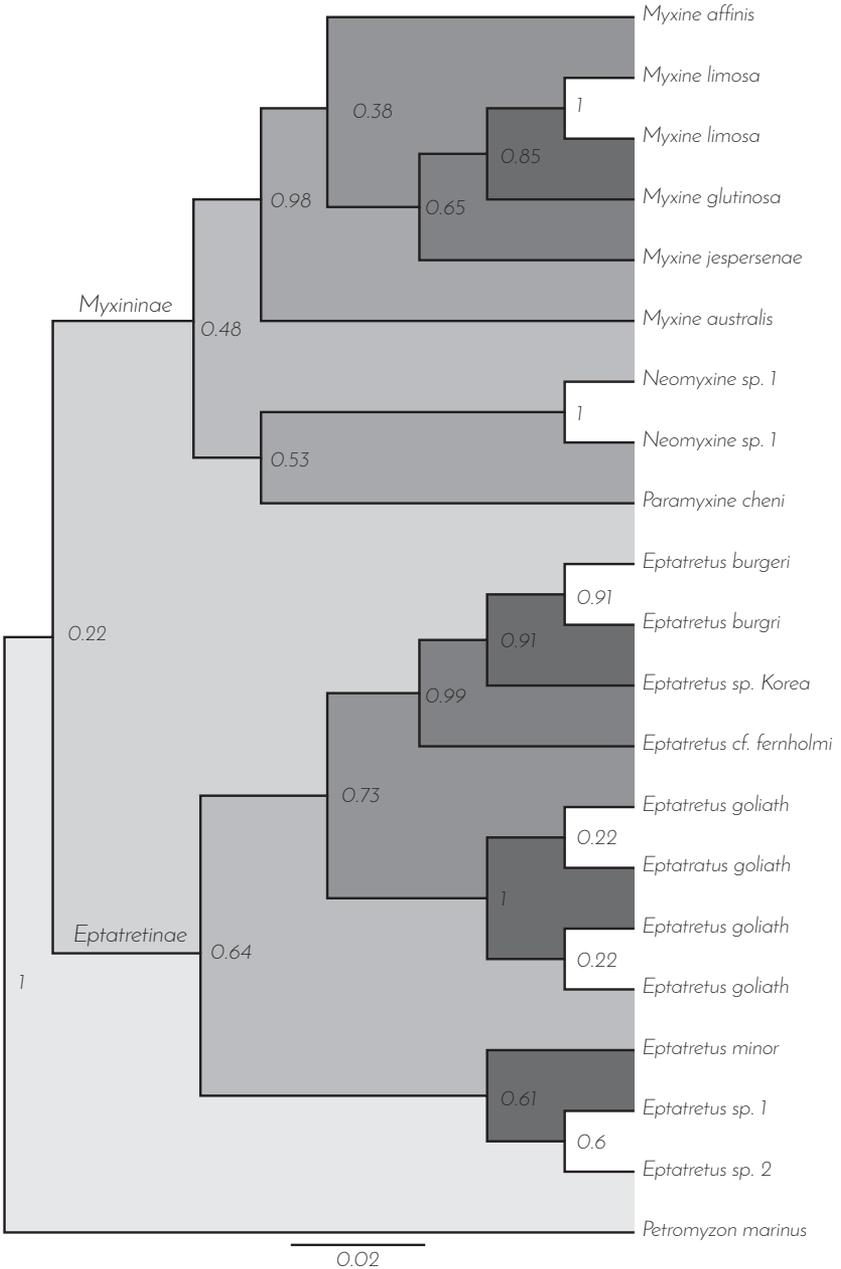
FIGURE 2. Maximum clade credibility phylogenetic tree of the observed hagfish species using CO1 mitochondrial DNA.
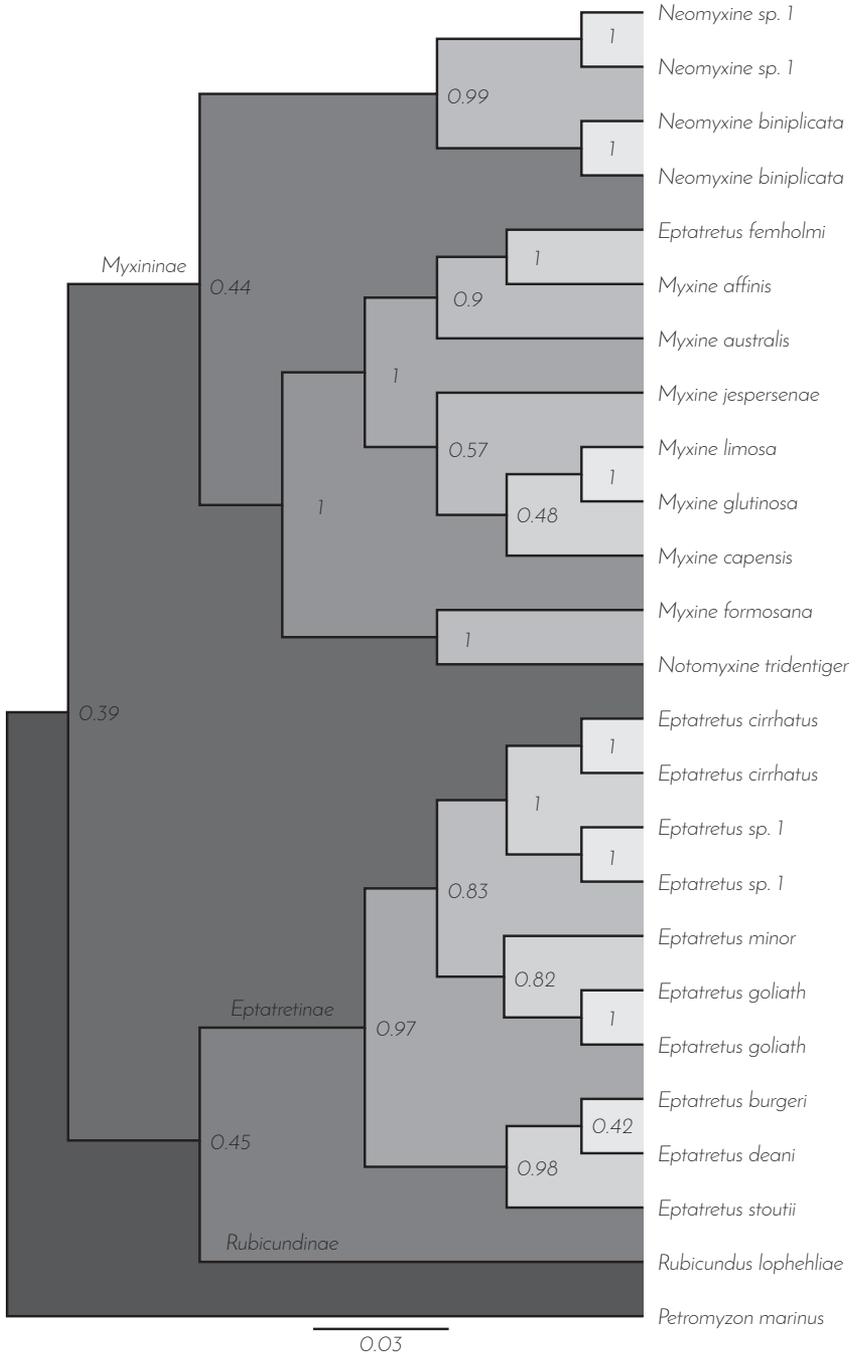
TABLE 1. Species represented in DNA Alignment, their corresponding Genbank number for 16s and/or CO1, along with the constraint of being monophyletic for *Eptatretus* or monophyletic for *Neomyxine*, *Myxine*, and *Paramyxine*.

SPECIES

Eptatretus burgeri 2
Eptatretus cirrhatus
Eptatretus cirrhatus 2
Eptatretus cf. fernholmi
Eptatretus deani
Eptatretus fernholmi
Eptatretus goliath
Eptatretus goliath 2
Eptatretus goliath 3
Eptatretus goliath 4
Rubicundus lopheliae
Eptatretus minor
Eptatretus sp. 1 LDS-2013 voucher NMNZ P037108
Eptatretus sp. 1 LDS-2013 voucher NMNZ P045318
Eptatretus sp. 1 LDS-2013 voucher NMNZ P045319
Eptatretus sp. 2 LDS-2013 voucher NMNZ P045332
Eptatretus sp. 'Korea'
Voucher NRM 50590
Eptatretus stoutii
Myxine affinis
Myxine australis
Myxine capensis
Myxine formosana
Myxine glutinosa
Myxine jespersenae
Myxine limosa
Myxine limosa 2
Neomyxine biniplicata
Neomyxine biniplicata 2
Neomyxine sp. 1 LDS-2013 voucher NMNZ P044014
Neomyxine sp. 1 LDS-2013 voucher NMNZ P044153
Neomyxine sp. 1 LDS-2013 voucher NMNZ P044215
Neomyxine sp. 1 LDS-2013 voucher NMNZ P044216
Notomyxine tridentiger
Paramyxine cheni
Petromyzon marinus

*: Monophyly for *Eptatretus*
#: Monophyly for *Neomyxine*, *Myxine*, and *Paramyxine*
OG: Outgroup

GENEBANK #16s	GENEBANK #C01	CONSTRAINT
JX442459.1	JF952730.1	*
JX442460.1	–	*
–	KF144341.1	*
–	KF144342.1	*
JX442463.1	–	*
–	KF929858.1	*
–	KC807350.1	*
KF144271.1	KF144306.1	*
KF144269.1	Kf144307.1	*
KF144268.1	–	*
KF144270.1	–	*
–	KC807325.1	*
JX442456.1	KC807331.1	*
–	KF144298.1	*
–	KF144299.1	*
KF144252.1	–	*
KF144253.1	–	*
JX442462.1	–	*
–	GU440317.1	#
JX442471.1	KC807353.1	#
JX442470.1	KC807355.1	#
–	JF493944.1	#
–	JN027323.1	#
JX442476.1	KF930165.1	#
JX442474.1	KC807335.1	#
JX442480.1	KC807332.1	#
JX442479.1	–	#
–	KF144285.1	#
–	KF144286.1	#
–	KF144280.1	#
KF144244.1	–	#
–	KF144281.1	#
KF144243.1	–	#
–	EU074500.1	#
AF364620.1	–	#
KJ128854.1	KF930255.1	OG

TABLE 2A. Effective Sample Size (ESS) and mean parameter values for combined phylogenetic reconstructions from sequences of the 16S gene.

STATISTIC	MEAN	ESS
Posterior	-2178.97	2158
prior	58.275	1262
likelihood	-2237.245	5892
treeModel.rootHeight	0.153	1954
tmrca(outgroup)	0	-
Yule.birthRate	19.82	17472
ac	0.346	2835
ag	0.499	3050
at	0.334	2408
cg	0.16	1719
gt	0.129	2832
frequencies1	0.349	795
frequencies2	0.196	1284
frequencies3	0.164	1145
frequencies4	0.291	1121
alpha	0.224	1892
ucld.mean	4.525	26430
ucld.stdev	2.425	869
meanRate	6.564	1770
coefficientOfVariation	4.2	536
covariance	-0.01132	3045
treeLikelihood	-2237.245	5892
speciation	39.063	1229

TABLE 2B. Effective Sample Size (ESS) and mean parameter values for combined phylogenetic reconstructions from sequences of the CO1 gene.

STATISTIC	MEAN	ESS
Posterior	-3995.282	1372
prior	-15.662	1321
liklihood	-3979.619	3307
treeModel.rootHeight	2.177	1937
tmrca(untitled1)	0	-
Constant.popSize	0.9	1735
kappa	11.83	1179
frequencies1	0.316	645
frequencies2	0.247	842
frequencies3	0.09579	865
frequencies4	0.341	768
alpha	0.895	435
plnv	0.486	346
ucld.mean	1.675	1605
ucld.stdev	0.398	985
meanRate	1.696	1626
coeffiecientOfVariation	0.4	948
covariance	-0.03918	9282
treeLikelihood	-3979.619	3307
coalescent	-9.365	1323

TABLE 3. Aikake Information Criterion, corrected for finite sample sizes (AICc) values and models of nucleotide evolution for the 16S and CO1 genes. The best model has a value of 0, and is considered statistically superior to other models with AICc values that are 4 or more AICc units greater than the best model.

	MODEL	Delta AICc
16S	TIM2+G	0
	TIM2+I+G	1.058
	GTR+G	3.873
	GTR+I+G	5.525
	TPM2uf+G	6.049
	TPM2uf+G	7.389
CO1	HKY+I+G	0
	TPM1uf+I+G	1.796
	TIM2+I+G	1.821
	TPM2uf+I+G	1.914
	TrN+I+G	2.277
	TPM3uf+I+G	2.347

Review of Possible Causes, Effects, and Remedies for Metal Pollution in the Environment

Rachel Thomason

Faculty Mentor: Dr. Christine James, Department of Philosophy and Religious Studies

Metal pollution is in the air we breathe, the water we drink, and the food we eat. Every day our bodies are exposed to unnecessary heavy metals and current research shows continually elevated levels of metal concentrations in the environment. These levels indicate harmful side effects in humans, animals, and the environment in areas all around the globe. In this paper, I argue that metal contamination enters the environment primarily due to human activity. I also discuss the different measures needed to remediate the current amount of metal pollution in the environment. I will explain how human activity leads to metal pollution using research from Shi et al. (2014) and Jarvis et al. (2013). While Shi et al. analyzes which activities produce each heavy metal and the highest concentrations, Jarvis et al. (2013) explain the need for terrestrial species—specifically the wild nine banded armadillo—to monitor the transfer and accumulation of metals. Feleafel and Mirdad (2013) explain the impact of metal pollution on crops and the harmful exposure to its consumers, and they give strategies to lessen this industry's effect on our ecosystem. As I argue how an increase in metal accumulation affects not only the environment but also our health, food chain, species diversity, and economies, I utilize research from Lombardi et al. (2012) who gives the example of a historical mining town in Peru and its importance to the economy and destruction to the habitants and its environment. To conclude my argument that humans are the main producers of this harmful pollution, research from Spiegel (2009), Lindmark and Bergquist (2008), and Soares and Soares (2013) provide an interdisciplinary approach to reducing metal pollution in the environment by harnessing social awareness, political and economic reform, and biological advances, respectively.

INTRODUCTION

Metal pollution in the environment is a growing concern globally due to the constant addition of these contaminants into the environment and a lack of conservation efforts needed to maintain stable levels. Metals are not biodegradable and therefore accumulate through the food chain, "creating an environmental hazard and posing a serious risk to public health" (Soares and Soares, 2013). Certain metals—for example, copper, iron, zinc, and cobalt—are essential trace elements and necessary for normal cell growth and function at lower concentrations; "however, these metals become toxic at specific threshold concentrations" (Soares and Soares, 2013). Non-essential metals—such as cadmium, mercury, and lead—are highly toxic even at low concentrations. Industrialization and an increasing population have led business and agricultural industries to disregard government regulations in order to produce enough products to satisfy the demand at the lowest cost. These practices often lead to metal pollution into the environment and our bodies, leading to a worldwide public health concern today.

As an undergraduate researcher in the environmental toxicology department, I explore metal accumulation in the livers of wildlife species. The aim of this paper is to explore the possible causes and effects of metal pollution in order to express the need for environmentally conscious yet economical industrial and agricultural reform. First, I discuss the possible origins of metal contaminants in the environment by observing correlations between historical records of human activity and metal levels in animals relative to their habitat. Next, I focus on the harmful effects of metal toxicity in the environment, animals, plants, and humans, while also looking into the regulated standards set for this type of pollution. Lastly, I debate business strategies and other conservation efforts needed to remediate, or lessen, the metal levels in the environment. Since we are the primary cause of this threat, I believe it is our responsibility to continue searching for improvements before the damage is catastrophic.

POSSIBLE FACTORS INFLUENCING METAL ACCUMILATION

Researchers have found numerous sources of metal pollution including mining, construction sites, warfare, harbors, textile industries, and sewage, among many others (Wang et al, 2011). Human activity is the common producer of the majority of heavy metal pollution. Contamination that is caused by humans is referred to as anthropogenic pollution. In order to determine the source of pollution, we must also discuss how metals accumulate and effective ways to measure the amount of metals in the ecosystem. Here, an "ecosystem" is defined as a community of living organisms and their environment interacting together.

An important aspect of maintaining stable levels of metals in the environment is the use of effective bioindicators, which are organisms that accurately monitor the amount of metals in their environment. Comparing specific geographic locations of varying anthropogenic activity, analyzing previously collected data with the values found in a given study, and correlating events of human activity to the data are typical means of assessing the sources causing metal accumulation. The following studies incorporate these methods of testing metals to further our understanding of anthropogenic pollution of metals.

The first topic of discussion is construction sites as major contributors to the accumulation of metals in the environment. Shi et al. (2014) argue that sites of large-scale construction are one of the most extensively contaminating human activities that cause heavy metal pollution—specifically pipeline construction. In this study, Shi et al. observed different zones of impact within the pipeline construction area. Through observations, they found that the trench, working zone, piling area, 20m, and 50m had the highest to lowest tendency of soil contamination, respectively. Trenching and welding operations, vehicular traffic during development and maintenance, construction materials stacked in piling areas, and sewage from working zones are the main potential concerns regarding pollution sources of heavy metals. This information is used to determine the type of pollution resulting from each activity and the spread of heavy metals in the area. This research will provide helpful information to reduce pollutant emissions in future risk management strategies.

Shi et al. (2014) found that the scale of impact is contained within about 20m from the pipeline construction site. They concluded that chromium and zinc might not be caused by pipeline construction. However, they considered the cadmium levels in the trench area to be related to welding activities and the cadmium levels in the piling areas and working zones to be related to contaminated construction materials and vehicles. They associated 50% of total copper emissions with vehicular transport, mainly arising from brakes and tires. Nickel contamination was sourced from vehicles, as well, due to mechanical wear and burning of oil. Finally, they found lead to have been predominantly caused by traffic because it is used as an additive in many motor fuels.

In contrast to Shi et al. in determining sources of pollutant origin, Jarvis et al. (2013) emphasize the need for terrestrial species, meaning animals that live on land, as proxies for monitoring the transfer and accumulation of metals. Since it is nearly impossible to test every species for each type of toxicant, Jarvis et al. use the wild nine-banded armadillo as the primary bioindicator of terrestrial toxicology due to their tolerance of human disturbance, constant contact with soils by digging for a nest, and ingestion of soils while hunting or eating prey. A bioindicator is the use of an organism to measure the amount of pollution in an environment. This research

tests liver tissue samples of animals from each site "because it is the major storage and detoxification organ in most organisms and has been shown to accumulate metals" (Jarvis et al., 2013). This study is the first of its kind and offers valuable information on monitoring metal accumulation in areas of varying land use.

Samples from locations in Georgia and Florida were collected from 2003 to 2012. Pebble Hill (PH), Pinebloom (PB), and Tall Timbers (TT) are sites of timber and wildlife management plantations located in relatively rural areas; these three sites were estimated to have lower metal levels since there is relatively little human activity. Merritt Island (MI) is occupied by Kennedy Space Center, and Camp Blanding (CB), a training site for the Florida National Guard; these two sites were projected to contain higher levels of metals due to disposal of chemicals and other toxic materials used by the space industry and large amounts of live ammunition from troop training.

Camp Blanding, the site of the highest anthropogenic disturbance, was found to have the highest metal concentrations among all sites—particularly lead, zinc, cadmium, and copper. Jarvis et al. attribute the majority of lead accumulation to vehicular traffic, agreeing with the previous study on pipeline construction. Zinc concentrations were elevated at Camp Blanding as well as Tall Timbers and Pinebloom. "Corrosion of zinc alloys…and erosion of agricultural soils substantially contribute to increased zinc levels in the environment" (Jarvis et al., 2013). They also relate the elevated zinc levels in earthworms of those areas to increased zinc accumulation in armadillos and other animals that feed on earthworms. Pinebloom and Tall Timbers experienced elevated levels of copper. Copper is an essential element in most animals and therefore has a tendency to collect in their organs (Jarvis et al., 2013). Merritt Island did not contain any significantly elevated levels of metals contrary to the initial prediction, suggesting proper disposal of wastes and successful preventative measures.

Limitations to this research include the movement of soil and animals, thus the exact origin of contaminants may not be fully known. However, as more data is collected and compared, we can draw more accurate conclusions. As we continue to expand our awareness of how metals enter ecosystems, we may begin to develop more effective strategies to prevent or remove them. Next, in order to determine proper toxicity regulations and raise awareness for public health concern, it is vital to understand the harmful effects metals have at given levels in animals, humans, and the environment.

EFFECTS OF METALS ON ECOSYSTEMS

Research on the consequences of metal exposure to the environment and animals is extremely important in assessing the total damage caused by this pollution. This information is also useful

as propaganda to lawmakers and businesses in order to provide updated environmental regulations. Current research already shows an astounding amount of negative side effects related to metal exposure. Toxic levels of metals in an animal can stunt growth, decrease biodiversity, and even lead to death (Ficken & Byrne, 2013). In humans, certain metals can cause neurological problems, DNA damage, increases in platelets, decreases in white blood cells, rises in blood pressure, and it has even been shown to increase mortality rates in cancer patients (Mucillo-Baisch et al., 2012).

Humans are the main cause of metals in the environment. Anthropogenic activity first pollutes soil, then crops, thus causing the animal or human who eats the crops or contaminated animal to accumulate metals themselves (Shi et al., 2014). Although humans have a greater tolerance for higher levels of metals, the harmful effects on plants and some animals occur at much lower levels. Most governmental regulations do not account for this deficit, and the pollution can cause detrimental effects before any action is taken to reduce it.

Feleafal and Mirdad report several studies showing a positive correlation between the amount of lead in soil with that of plants and vegetables growing in it. As lead concentrations increased, the total yield of roots, stems, leaves, and product decreased. While some metals are needed for living organisms to function, lead is non-essential and "does not play any role in the metabolism of plants or animals." In this study, Feleafal and Mirdad give the symptoms showing that a very low concentration of lead can inhibit vital plant processes, such as "inhibition of enzyme activities, photosynthesis, disturbed mineral nutrition, change in hormonal status, alteration in membrane permeability, mitosis, water absorption showing toxic symptoms of dark leaves, wilting of older leaves, stunted foliage and short brown roots." The reduction in root growth can cause inadequate water and nutrient uptake, leading to overall poor health or death of the plant.

While disturbance to the environment and animals can dramatically affect us indirectly, the harmful effects brought on directly by metal contamination in humans can be even more damaging. As Feleafal and Mirdad explain, although lead is found in all tissues of mammals, an increase in concentration inhibits most of the basic physiological processes in the human body. Lead has cancer-causing properties and causes damage to the central nervous system, and even death in extreme cases. Additional research found that cancer patients with elevated levels of cadmium and lead in their blood were linked to substantially higher rates of mortality (Wang et al., 2011).

The adult skeleton can store lead concentrations under normal conditions; however, many studies have demonstrated the poisonous effects not only to adults but also to children, who are more highly susceptible. Lead, as well as many other metals, can be transferred

from mother to child during pregnancy and breastfeeding. Children absorb a higher percentage of metal contamination and excrete a lower percentage than adults do, as they have no efficient means of eliminating heavy metals from their bodies. Moreover, lead toxicity may cause impaired mental development, behavioral disturbance, and reduction in intellectual and emotional functions in young children at levels even lower than clinical symptoms (Bao et al., 2009).

To determine these initial symptoms, a study conducted in China examined the pollution caused by a large-scale mine to villages downstream. Bao et al. (2009) found that the drinking and irrigation water, as well as the rice crops, contained cadmium and lead concentrations that exceeded the standards set by the government. Hair samples taken from children ages 7-16 showed metal concentrations that corresponded with the levels in their villages, and their emotional and behavioral development were affected likewise. The symptoms reported by the mothers of these children were being "withdrawn, anxious or depressed, somatic complaints, social problems, thought problems, attention problems, delinquent behavior and aggressive behavior" (Bao et al., 2009). Long-term exposure to heavy metals has been well known to cause mental health problems over time, but this study shows how the detrimental effects can become apparent in children after only several years of exposure.

Adding to the discussion of mental issues associated with metal intoxication, Lombardi et al. (2012) call upon the famous example of the "Mad Hatter" from Alice in Wonderland to explain the effects of mercury poisoning on the psychological functions in humans. The term "mad as a hatter" was commonly used in the 1800s because the felt used for making hats was cured with mercury, and the hatters would inhale the mercury vapors as they worked. The characteristic symptoms of these people were hallucinations, the shakes, and psychosis (or the loss of contact with reality).

They also found that mercury contamination can lead to disruptions in the autonomic nervous system function, which can lead to a slew of health concerns such as weight loss, tremors, excessive salivation, ulcers of the mouth, restlessness, anemia, and severe depression which often lead to alcoholism (Lombardi et al., 2012). (The autonomic nervous system controls the involuntary functions of the internal organs such as heart rate, digestion, urination, breathing, swallowing, etc.) Another study of mercury ingestion through polluted soil in lab rats found poor growth and no weight gain, decreased white blood cells and increased platelet count, anxiety, and increased stress (Mucillo-Baisch et al., 2012). These cases were found in mining towns classified as low-exposure areas by the Occupational Safety and Health Administration (OSHA). Though the range of destruction

caused by metal contamination is well researched, the lack of policies regarding the removal, prevention, and protection against this pollution remain at a standstill.

MANAGEMENT OF METAL POLLUTION IN THE ENVIRONMENT

Since the 1500s, mining has been crucial to the economy in Huancavelica, Peru, regrettably killing thousands of people and destroying miles of landscape along the way. Under Spanish rule, the majority of residents were forced to work under dangerous conditions in these areas as the only way to make a living. The hard manual labor in these high altitudes, extreme temperatures, and harsh weather conditions resulted in numerous health problems as well as landslides and tunnel collapses. Huancavelica quickly became referred to as the "mine of death" and the "public slaughterhouse." One of the overseers at Huancavelica wrote to their king in 1600 to close the mine, adding that these free men were "forced to endure conditions worse than those imposed on criminals in prisons" (Lombardi et al., 2012). Despite the drastic consequences, the mine remained in business because of its "economic importance."

Inhalation of mercury and other products of mining rapidly collected in their lungs. Also, with little opportunity to wash throughout the week, miners transferred these impurities back to their homes, introducing their families to prolonged exposure and absorption through the skin and food. Many miners had to be fed by family members because of the violent tremors, excessive salivation, and mouth ulcers associated with mercury poisoning. They developed their own remedies such as moving to warmer areas of lower altitude, drinking large amounts of beer and working in the fields to "sweat out" the mercury for several weeks. Once their symptoms had subsided, "some miners returned to work in the Huancavelica mine" (Lombardi et al., 2012).

Under new rule in 1760, the governor of Huancavelica wrote "that miners were now free of mercury intoxication because the ore contained so little quicksilver" due to upgraded ventilation and mining techniques; however, poisoning still continued. Although "some improvements in health occurred with new mining methods," the pollution to the biosphere of this area was never accounted for and continues today. Mercury vapors from the mine escaped into the air, and settled onto the ground, water, and everything across the town, thus entering the food chain (Lombardi et al., 2012). In 2007, the Blacksmith Institute placed Huancavelica in its list of the top 10 most polluted places in the world.

Today, mining towns and low-income areas have become a major concern for healthcare, environmental justice, and social equality due to the vast amount of metal exposure to the people living and working in these areas. In the poorer countries of Africa, Asia, and

South America, mining is "an important source of livelihood for many rural communities, but it is also the world's fastest-growing source of mercury contamination" (Spiegel, 2009). These impoverished countries also face problems with child labor and lack of needed supplies, leading to children mixing mercury solutions by hand. Furthermore, without proper equipment, the burning of combined mining material releases mercury contamination in the air to a degree up to 50 times greater than the maximum public exposure guideline set by the World Health Organization (WHO) (Spiegel, 2009). Housing, food stalls, and schools are all located near these sites, and the contaminated wastes are usually stored near the wells and agricultural land.

Environmental justice literature on pollution emphasizes the "polluter pays principle" for large-scale mining companies "based on the idea that companies must be economically and legally responsible for preventing hazards (and compensating communities if prevention fails)." Many large-scale mines have in turn switched to safer, 100% mercury-free technology alternatives; however, most small-scale mines cannot afford this transition. The United Nations has developed the Global Mercury Project by working closely with a small mining community in Tanzania for three years to provide an interdisciplinary approach to promote "cleaner and more-efficient technology that minimizes negative environmental impacts while also improving earnings, health, and safety" (Spiegel, 2009). The United Nations first worked with community members in workshops that taught the environmental and health impacts of mining, and then held interactive discussions with locals to determine how broader social, economic, and political issues may lead to policy changes. In this research, they found that assistance from the government and large-scale mines were needed to provide workers with land rights and financial support that would allow a switch to alternative methods (Spiegel, 2009). Criticisms to this strategy include a limited budget for United Nations workers to train communities long enough to have a substantial impact, and whether government agencies and mining companies will adhere to the needs of community. Nonetheless, raising awareness and teaching locals how to work with their government to reach solutions are the only known effective methods of reform in cases such as these.

While we continue to search for economic and environmental relief in impoverished rural nations, research to reduce and reverse the increasing amount of metal pollution in industrialized countries has become a serious concern. Since the Industrial Revolution, metals have been accumulating in the environment at alarming rates, with hardly any measures taken to control this danger. Until recent decades, environmental ethics were not a matter of concern to businesses. Even with governmental regulations set today, the

majority of industries have done little to reduce their emissions into the environment because of the high cost of switching to "eco-friendly" practices. In agricultural ethics, unsafe farming practices such as planting vegetables near highways and industry regions, or the use of sewage as free fertilizer expose the consumers to elevated levels of heavy metals. Many studies monitoring the metal concentrations in environments near industrial centers find levels far beyond the limit set by the government, emphasizing the need for stricter government regulation and more economical conservation strategies.

When discussing environmentally conscious government policy, Sweden serves as a prime example for industrial reform. Beginning in the 1960s, the Swedish government and Environmental Protection Agency (EPA) worked closely to enforce national emission guidelines that would reduce the total amount of pollution of certain industries before the pollution became a major issue. One of the main tools that allowed for such success was the Licensing Board for Environmental Protection, which could "deny licenses for industrial activities considered environmentally harmful" (Lindmark and Bergquist, 2008). In countries such as Canada and the U.S., public health is the main objective rather than balancing environmental and socio-economic goals as in Sweden. By giving the EPA more power, the Swedish government was able to incorporate industrial influence on legislation and balance environmental and economic objectives. Lindmark and Bergquist (2008) suggest that further study of historical business methods would be useful in developing the framework for environmental business strategies that other countries could follow.

Reducing further pollution is imperative to the overall health of the environment and human life. However, heavy metal concentrations have already reached toxic levels in some areas, and since they are not biodegradable, they will continue to accumulate unless we find ways to recover them from the environment. Wastewaters in some industrialized countries have been found to contain levels of metal contamination up to 120 times higher than allowed by law, posing a serious environmental threat and need for stricter regulations (Soares and Soares, 2013). Current research by Soares and Soares (2013) presents the possibility of bioremediation of industrial wastewaters as an effective, eco-friendly, and low-cost technology. Bioremediation is the act of using either naturally occurring microorganisms or deliberately introducing foreign microorganisms into an environment to break down environmental pollutants. The US Food and Drug Administration has recognized a certain type of yeast cell, which is a surplus by-product from the brewing industry as a safe organism. The yeast cell's ability to remove heavy metals from industrial wastewater can reduce the toxicity in the environment. Furthermore, these metals can be recycled once they are recovered, which reduces the energy needed to produce metals and engage in

mining activities that disturb the ecosystem. With the high prices of metals today and the low cost of these yeast cultures, companies who implement this technique may also receive a financial benefit by selling the recycled metals without generating waste (Soares and Soares, 2013). Continuing research into biological solutions such as these could prove that the switch to cleaner environmental practices is beneficial for many industries.

CONCLUSION

Most researchers agree that the first step to lowering metal levels in the environment is raising awareness and informing the population of the damaging effects not only to their heath but also to the world. As metal concentrations rise, plants and animals will slowly be destroyed. Ficken and Byrne project that 75% of the world's organisms could face extinction within the next 300 years. Even economies suffer from metal contamination. "In 1999, the Tanzania Food and Drugs Authority noted that Tanzania 'lost US $90m after the European Union banned importation of Tanzanian fish fillets into its markets'" after tests reveled high mercury levels (Spiegel, 2009).

Research for finding methods of detoxification of metals from the environment continues to grow each day, with possible uses of yeast or natural plants that are able to remove certain metals from the environment. Ethical agricultural practices, such as the use of less contaminated organic matter and cultivation of crops away from industrial centers, are also needed for effective reduction of metal accumulation. Even in the home, washing vegetables and fruits with vinegar or peeling them can lessen the threat of metal toxicity in our own bodies (Faleafel and Mirdad, 2013). With further research from government and environmental agencies, industry leaders, and healthcare professionals, I believe a solution can be compromised that benefits each field and the world as a whole. As the main factor causing this disturbance to nature, it is our duty to reverse the damage before it becomes permanent.

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The Paxton Political Motive

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This article discusses the primary motivation for the murder of twenty innocent Native Americans at the hands of a group of frontiersmen who came to be remembered as the Paxton Boys. In the days, decades, and centuries following the murders, the Paxton Boys have been depicted as a group of impulsive white savages who were driven to kill by their radical racist beliefs. Through the analysis of primary documents, as well as review of the subject's historiography, this research suggests that the Paxton Boys' actions were not the result of passionate frontier justice, and were instead the product of a carefully calculated plan to make a political statement that would get the attention of the colonial government. After decades of having their pleas for government aid and arms ignored, the frontiersmen of western Pennsylvania decided to write their message in the blood of a neighboring tribe of peaceful Native Americans. The saga of the Paxton Boys offers an early glimpse into the class conflict, racial tensions, and cries for political representation that would be echoed nearly a decade later during the American Revolution.

During the dead of winter in 1763, a small western Pennsylvania town became the focus of an entire nation. The controversy and conflict that arose from the rolling hillsides of Paxton inspired a rebellion that brought the colony of Pennsylvania to the brink of civil war. The murder of twenty unarmed Native Americans by a band of men that would eventually come to be known as the Paxton Boys, began a month long whirlwind of activity that culminated with a march on the colonial capital. But what was the motivation for this seemingly unprovoked attack? Was it a bout of passionate rage that inspired the boys from Paxton to lash out? Or was the morning of December 14th, and the events that followed, a carefully planned means to an end? The Paxton Boys' actions were not the result of passionate frontier justice, and were instead the product of a carefully calculated plan to make a political statement that would get the attention of the colonial government. Unfortunately for the vulnerable members of the Conestoga tribe, the Paxton Boys intended to write their political message in blood.

In the 252 years that have passed since the fateful winter of 1763, there has been a litany of researchers who have attempted to explain the Paxton Boys' actions. The vast majority of this scholarship has surmised that racial tensions between white frontiersmen and Native Americans ultimately led to the eventual massacres and the subsequent march on Philadelphia. Examples of this argument can be seen throughout the historiography of the subject in articles such as, "Violence, Race, and The Paxton Boys" by Krista Carmenzind, as well as "William Penn's Experiment in Race Relations" by Thomas E. Drake. These articles as well as others highlight the implications race had on the Paxton perception. These implications include the preexisting prejudices by the frontiersman that ultimately led to the lumping of Native tribes and peoples into stereotypical "Indians." While race is an important aspect of the subject, a burgeoning area of research regarding the underlying political motive of the Paxton Boys has garnered recent attention in writings such as Peaceable Kingdom Lost: The Paxton Boys and The Destruction of William Penn's Holy Experiment by Kevin Kenny, and this political angle is likewise the topic of this article. The Pennsylvania frontiersmen were undoubtedly influenced by the race of their victims; however it was political instigation that ultimately led to the infamous acts of the men we now know as the Paxton Boys.

If tasked with describing the political and social landscape of mid-1700s Pennsylvania, one would be hard pressed to find a word more fitting than "divided." More than seventy years after it was founded by William Penn, Pennsylvania had begun to more closely resemble a religious and ethnic melting pot than the Quaker colony he initially envisioned. In truth, Penn's peaceful kingdom ended where the frontier began. It was in this way that 1750's Pennsylvania was cleaved into two distinct halves, each home to its own distinct people, ideals, and customs. The eastern portion of the colony was relatively metropolitan. Home to politicians, tradesmen, and a great many Quakers, cities like Philadelphia more closely resembled a bustling British town than a colonial capital. In cities and towns along the colony's extreme eastern edge, the famed Quaker values of pacifism and industry were alive and well. Just over 100 miles to the west however, existed a different world entirely. The people who inhabited the western Pennsylvania frontier were just as tough as the land they called home. Primarily of Scots-Irish ancestry, the frontiersmen of western Pennsylvania lived in small towns and villages tucked away in the rolling countryside. Ingrained with the ability to survive in even the least advantageous of places, these men clung to the edge of civilization while simultaneously scratching a living from the land. Unlike their fellow colonists to the east, these frontiersmen were primarily followers of Catholicism and had far fewer qualms with violence. Another sticking point for many frontiersmen was the lack of western representation in the colonial assembly. The five frontier

counties of Pennsylvania were afforded only ten seats between them. By comparison, the three eastern counties and Philadelphia owned twenty six seats in the assembly. As a result, most frontiersmen felt that political policy changes were far from their grasp.[1] Or as frontiersman Hugh Williamson put it, "For God's sake, are we always to be slaves, must we groan for ever beneath the yoke of three Quaker Counties."[2] While vastly different on nearly every level, the Quakers to the east, and the Scots-Irish frontiersmen to the west harbored a working relationship. In the mid-1750s, however, this relationship was strained by warfare and the challenging of political policies.

Although he was long gone, the policy of pacifism that William Penn instilled was the status quo for Pennsylvania for much of its early history. Penn had been a proponent of treating the Natives fairly and with respect, and until the mid-1750s, that policy saw unparalleled success when compared to the other British colonies. With the start of the French and Indian War in 1754, relations between many Native tribes and the colonies were severed. Many large tribes such as the Delaware and Shawnees chose to ally themselves with the French in the hopes of driving the land-hungry British back across the Atlantic Ocean. Although there were several large engagements involving both French and British regulars, the war was epitomized by small-scale, yet savage, conflicts between the French-allied Natives and volunteer frontiersmen. Native American and British relations were significantly affected by the brutality of the fighting as well as the loss of life on each side. The Chippewa chief Minavavana addressed the lasting feelings of resentment held by his people to a trader named Alexander Henry. In the letter, Minavavana details the significant loss of life his tribe suffered in the war. He also states that it is custom to retaliate against the people who killed his fellow tribesmen, until the spirits are satisfied.[3] The frontiersmen also harbored resentment because they bore the brunt of the war's impact, from a British perspective. Those frontiersmen who volunteered to fight the French and Native allies bore witness to the horrors of frontier warfare first hand, in many cases at the expense of their fellow homesteaders. Excerpts from merchant-turned-soldier, William Trent, who was stationed at Fort Pitt in 1763, provide eyewitness testimony to the type of tactics the natives were believed to often employ. On the twenty-ninth of May, 1763, Trent enters into his journal an account of the murder of two men, two women, and one child by a group of Delaware tribe

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[1] Krista Camenzind "Violence, Race, and The Paxton Boys." In *Friends and Enemies in Penn's Woods,* edited by William A. Pencak and Daniel K. Richter (University Park: Pennsylvania State University Press, 2004), 201-203

[2] Hugh Williamson, *The Plain Dealer: Or Remarks on Quaker Politicks in Pennsylvania,* No. 3 (Philadelphia, 1764), 22.

[3] Minavavana (Chippewa Chief) in discussion with Alexander Henry, *The Journal of Alexander Henry the Younger,* 1761.

members. Trent explains that the two women who were killed were treated in unspeakable ways. That same day he documents the killing and scalping of two soldiers at a sawmill.[4] Although these two excerpts are mere snippets of individual occurrences and emotion, they provide an insight into a general shift in attitude across the frontier. After the French and Indian War and the subsequent violence of Pontiac's Rebellion, the pacifist policy of William Penn's design was no longer viable. A semblance of peace was eventually achieved on the frontier, but race relations between the frontiersmen and Natives were beyond repair.[5] It was during such conflicts as the French and Indian War and Pontiac's Rebellion that frontiersmen began to see Native Americans in an overly generalized sense. That is, many frontiersmen stopped seeing Natives as members of their individual tribes, and instead as only "Indians." For example, Pontiac was not an Ottawa chief, he was simply an "Indian," and, in the minds of Pennsylvania frontiersmen, this meant he was prone to violence and savagery. The importance of the Native American conflicts cannot be overestimated in the impact they had on the perception and prejudices of frontiersman. The fear and deracination that arose after these conflicts exacerbated racial tensions and increased distrust of eastern elites for the citizens of western Pennsylvania.[6] These same racial prejudices, coupled with growing dissent towards the Pennsylvania government and those who ran it, were the primary motivations behind the Paxton Boys movement.

For the Conestoga tribe members, nothing was the same. The Conestoga people had once been a large, well-connected tribe that called the Chesapeake Bay region home. It was there that the tribe spread their influence, even meeting with the fabled Captain John Smith in 1608. Unfortunately for the Conestoga, those days of influence and importance belonged to the annals of history by 1763. Over the previous one hundred years, the tribe had been humbled by a series of wars with the rival Iroquois. After the Iroquois seized their land, the dwindling number of remaining Conestoga tribe members splintered into several groups that were either assimilated into other tribes or exterminated by them. By 1763, Lancaster County, Pennsylvania was home to the twenty remaining members of the once thriving tribe. These remaining twenty members held very little resemblance to the Conestoga of old: they had adopted Christianity, and were exceedingly nonviolent. To keep themselves fed and clothed, the Conestoga created handmade baskets and brooms to sell to their white neighbors. When the sale of their crafts was not enough, the

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[4] Trent, William. *William Trent Fort Pitt Journal*, 1763.
[5] Vaughan, Alden T. "Frontier Banditti and the Indians: The Paxton Boys Legacy, 1763-75." In *Roots of American Racism Essays on the Colonial Experience* (New York: Oxford University Press, 1995), 83-84.
[6] Camenzind, "Violence, Race, and The Paxton Boys," 203.

Conestoga resorted to begging and panhandling in the surrounding towns.[7] Other than their skin color and heritage, the Conestoga held little in common with the Native Americans that actively took part in the French and Indian War or in Pontiac's Rebellion. Regardless of these facts, a group of neighboring frontiersman suddenly and brutally attacked the peaceful tribe of Christian Natives, and history remembers the frontiersmen as the Paxton Boys.

On the morning of December, 14, 1763, a column of black smoke billowed above the western Pennsylvania county of Lancaster. Six mutilated bodies lay among the charred remnants of the small Conestoga village that the surrounding colonists referred to simply as "Indian Town." A few hours earlier as the day began to break, a large group of nearly fifty frontiersman had ridden into Indian Town and viciously murdered the inhabitants. The two men, three women, and single child who were unfortunate enough to be in the village at the time were viciously murdered and scalped. After pausing briefly to torch the homes and outbuildings of the town, the group of horsemen turned their mounts and returned the way they had come.[8] It was soon discovered that the vigilante group were frontiersmen from in and around the neighboring town of Paxton. As a precaution, local authorities decided to move the remaining fourteen members of the tribe into Lancaster for their protection. These fourteen survivors were spared the grisly fate of their tribesmen because they were away from the village at the time of the attack. Unsatisfied with the incomplete nature of their crime, the self-named Hickory Men, but soon to be coined as the Paxton Boys, gathered just thirteen days after the initial attack to finish the job. On December 27, the Paxton Boys rode into Lancaster and headed straight for the town workhouse that was adjacent to the jail. Here the remaining Conestogas stayed while under the protection of local authorities. When confronted by the large band of men from Paxton, the individuals charged with the preservation of the remaining fourteen refugees offered only token resistance before stepping aside. Once inside, the bloodthirsty frontiersmen made quick work of removing the Conestoga tribe from earthly existence. A Lancaster man named William Henry later detailed the carnage of the blood soaked prison yard. Alerted by the commotion, Henry approached the yard and immediately recognized the slain corpse of a well-known Conestoga named Will Sock and his "squaw": "across him and his squaw lay two children, of about the age of three years, whose heads were split with the tomahawk, and their

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[7] Barber, Rhonda. "Recollections written in 1830 of life in Lancaster County 1726-1782 and a History of settlement at Wright's Ferry, on Susquehanna River," 1830.

[8] Vaughan, Alden T. "Frontier Banditti and the Indians: The Paxton Boys Legacy, 1763-75." In *Roots of American Racism Essays on the Colonial Experience* (New York: Oxford University Press, 1995)", 85.

scalps all taken off." In another part of the yard, Henry saw another Native whose "legs were chopped with the tomahawk, his hands cut off, and finally a rifle ball discharged in his mouth. In this way lay the whole of them, men, women, and children spread about the prison yard; shot, scalped, hacked and cut to pieces."[9] Upon completion of their grisly attack, the Paxton Boys simply rode away without ceremony or consequence.

Word of the Paxton Boys' actions spread across the colony, then the continent, and eventually across the Atlantic to England. In what became a topic of international discussion, the small hamlet of Paxton, Pennsylvania was on the tip of many tongues and in the back of many minds. After learning of the killings at Conestoga and Lancaster, the colonial governor John Penn placed a bounty of 200 pounds sterling on the heads of the Paxton Boys. In an address to the government assembly, Penn vehemently dismantled the character of the frontiersmen who committed the atrocious murders, and he demanded justice. After hearing the governor's call for action, the assembly responded by sympathizing with, "these poor Creatures' . . . barbarously butchered by a set of Ruffians, whose audacious cruelty is checked by no sentiment of Humanity."[10] Perhaps the most important public figure to speak out against the Paxton Boys was none other than Benjamin Franklin. Franklin went so far as to print a pamphlet entitled Narrative of the Late Massacres, in Lancaster County. In the pamphlet, the famous printer thoroughly denounced the Paxton party by questioning the humanity of the killers and labeling them as "Christian White Savages."[11] So began the process of dehumanizing and stereotyping not only the Paxton Boys, but Scots-Irish frontiersman as a whole. Surprisingly, the reaction from the rest of the colony did not align with that of the government. As evidenced by the lack of capture, prosecution, or even identification of the Paxton Boys, the vast majority of Pennsylvanians sympathized with the plight of the frontiersmen. The Paxton Boys murdered twenty innocent Natives on two separate occasions, both instances occurred in broad daylight and in the presence of witnesses, however after each attack they simply rode back to their homes and resumed their lives, unmolested. This protection was no coincidence; although their actions were questionable in the eyes of their neighbors, their motives were not. While the base of the Paxton Boys' support lay in the frontier areas of the colony, support and sympathy were not exclusive to those areas. Benjamin Franklin, himself the strongest of Anti-Paxton proponents,

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[9] John Dunbar, ed. *The Paxton Papers* (The Hague: Martinus Nijhoff, 1957), 29.

[10] "A Message to the Governor from the Assembly," Jan. 20, 1764, Samuel Hazard, ed. *Minutes of the Provincial Council of Pennsylvania, from the Organization to the Termination of the Proprietary Government* (Harrisburg, Pa., 1852), 123-124.

[11] Benjamin Franklin, *A Narrative of the Late Massacres, in Lancaster County, of a Number of Indians, Friends of this Province*, (Philadelphia: Anthony Armbruster, 1764),

was forced to acknowledge the considerable number of citizens that were in agreement with the Paxton Boys. Franklin wrote that even in the Quaker capital itself the vigilantes were, "encouraged by the general approbation of the populace." This same impression was echoed in the journal entry of Samuel Foulke who described the "disaffection appearing to Spread like a Contagion into the Interior parts of the province & Even the City it self."[12] After their return to Paxton, the fame and influence of the Paxton Boys increased to a fever pitch. As January turned to February, rumors began to fly around the colony that the Paxton Boys were planning to march on the colonial capital of Philadelphia. Those same rumors stated that the reasoning behind the march centered on the Pennsylvania government's decision to house and protect 150 Delaware tribe members a year earlier.[13] These Natives, who were of the Moravian faith, were housed on Providence Island and were taken under the wing of their Quaker protectors. Enraged with the perceived special treatment afforded these Natives, the majority of the population who were not Quakers let their displeasure be known. A Philadelphia reverend named Bernhard Adam Grube described the populace of the city as, "enraged" by the presence of the Natives.[14] As word of the impending march on Philadelphia spread, the city was thrown into mayhem. Among the rumored, but unproven, reasons for the march was that one of the Conestoga tribe members had escaped death at Lancaster and was now hiding among the Delaware on Providence Island.[15] The number of individuals who participated in the Paxton Boys march on Philadelphia is difficult to gauge. Conflicting eyewitness reports as well as the addition of marchers along the road to the capital confound the numbers. Although various reports placed the number of protestors anywhere between 100 and 1,500, the safest and most reliable estimate calls for around 250 marchers. Many who did not march began aiding the Paxton Boys in any way they could, including gathering and storing gunpowder and other equipment, as well as financially backing marchers who could not afford the trip. When the march was beginning, Philadelphia was in a state of panic. Governor Penn enacted a newly created Riot Act, which allowed for the mustering of citizens into militia companies to protect the city against the armed and dangerous frontier marchers. In response to Penn's call for militia, nine companies, six infantry, two cavalry, and

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[12] Samuel Foulke, "Fragments of a Journal Kept By Samuel Foulke, of Bucks County, While a Member of The Colonial Assembly Of Pennslyvania, 1762-3-4," *The Pennslyvania Magazine of History and Biography* 5, no.1 (1881): 67.

[13] Brooke Hindle, "The March of the Paxton Boys," *The William and Mary Quarterly* 3, no. 4 (1946): 470.

[14] John W. Jordan, "Biographical Sketch of Rev. Bernhard Adam Grube," *Pennsylvania Magazine of History and Biography,* XXV (1901), 17.

[15] Hindle, "The March of The Paxton Boys," 470.

one artillery were created. According to reports coming from the frontier, the Paxton Boys' lone objective was to murder the Natives who were under the Quakers' care on Providence Island. However, the group of frontiersmen also forewarned that although they did not wish to attack the Quakers, they would willingly do so if there were attempts made to keep the Paxton Boys from accomplishing their task. In response, Governor Penn and the assembly decided to try to move the 150 Natives to New Jersey by ship. The governor of New Jersey refused to allow the 150 refugees to enter his colony, so the Moravians were promptly returned to Providence Island. The populace of Philadelphia began to grow increasingly frustrated with the now renewed presence of the Native refugees. In the mind of the non-Quaker citizenry, Penn was placing the city and its people squarely into the path of the coming storm. By choosing to continue protecting the Moravians, Penn was believed to be inviting the wrath of the Paxton Boys, while simultaneously alienating many Philadelphians. Quakers soon discovered that the allegiance of many in the city lay with the approaching Paxtonites, rather than with the Quakers and their Native friends. The majority of the actively marching Paxton Boys were people of little means as well as the civilians and a significant portion of the German population.[16] Many who did not actively or openly support the Paxton movement, which by now it had surely become, supported the marchers by refusing to take any action at all, providing of course that the Paxton Boys did not attack or harm the citizens of the city. As the Paxton Boys grew closer, the possibility of actual war between the frontiersmen and Quakers appeared to be very real. Sarah Potts wrote a letter to her sister describing the fear that gripped the city ahead of the Paxton Boys' advance.[17] Devout Quakers were walking the newly fortified streets of Philadelphia, ready to defend their Native friends with bullets and blood if need be. On the opposite side, the fast-approaching wave of frontiersmen whose numbers were rumored to be in the thousands had already proven their penchant for killing and had vowed to destroy the Natives on Providence Island and anyone in their path. On February 5, 1764, volunteer companies amassed in courtyards and cobblestone streets. New arrived that hours earlier, an advanced force of Paxton Boys had crossed the Schuylkill and were now in Germantown, just miles away. As darkness fell on the gathered companies of militia, there was little to do but wait for dawn and for the war that would surely come with it.

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[16] Hindle, "The March of The Paxton Boys," 477.

[17] Isaac Sharpless, "A Pennsylvania Episode," *Bulletin of Friends' Historical Society of Philadelphia* 1, no.2 (February 1907): 72.

Dressed in skins and blanket coats, the tomahawk carrying, rifle and pistol wielding frontiersmen were a sight to behold.[18] War never dawned on the morning of February 6, as the Paxton Boys inexplicably chose to halt their advance in Germantown. In hindsight, the halt probably had quite a bit to do with the large number of armed and ready Quakers who were waiting in Pennsylvania. Regardless, the Paxton Boys' constraint was an important gesture, since constraint and control had been severely lacking in the previous actions of the frontiersmen. The Paxton Boys made it known that they had two demands, the first being that and all Natives be expelled from the country, and the second being the chance to have their complaints heard by the government. In response to these requests, and with the government's blessing, a delegation of leading townsmen including Benjamin Franklin agreed to meet with the Paxton leaders in Germantown. After much discussion, it was agreed that the Paxton Boys would return to their homes on the frontier, and in return the governor and assembly would listen to their grievances, so long as they were offered in an acceptable fashion. Matthew Smith and James Gibson, two Paxton leaders, were allowed to stay behind in Philadelphia to oversee the discussion of grievances as well as represent the interests of their frontier brethren.[19] With that, the much feared white savages from the west simply returned to the hill country they called home. Having dispelled the immediate threat of a physical war, both sides began the verbal and written sparring that escalated into a pamphlet war.

In the minds of citizens in frontier Pennsylvania, they had been underrepresented, unappreciated, and unappreciated. The titles of various pamphlets produced in support of the Paxton Boys sheds light on the overall feeling towards the relationship between the Quaker government and the rest of the state. Some of these titles include, *The Cheat Unmasked*, *The Quaker Unmask'd or Plain Truth*, *The Author of Quaker Unmask'd Strifd Start Naked*, *Clothes for a Stark Naked Author*, and A *Looking Glass for Presbyterians*.[20] As can be seen from the titles, a feeling of unfairness permeated the minds of the members of the Paxton movement. The list of grievances that were laid in front of the Pennsylvania government by Matthew Smith and James Gibson included, the grave nature of defenses on the frontier, a lack of proper representation in the government, and favoritism shown to Natives by the Quakers. The two Paxton representatives also requested the rescue of the captives still held by Native tribes from the French and Indian War. These complaints and requests were formally presented to the Governor and Assembly in a document entitled *The*

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[18] Hindle, "The March of The Paxton Boys," 479.
[19] Hindle, "The March of The Paxton Boys," 480.
[20] Alison Olson, "The Pamphlet War over The Paxton Boys," *The Pennsylvania Magazine of History and Biography* 123, no.1-2 (January-April 1999): 41

Remonstrance, the writing of which Smith and Gibson oversaw. The document stated that not only was the government unfairly favorable to Native Americans, but that it neglected to fulfill and preserve the rights of common citizens on the frontier. A second document, titled *The Declaration of Grievances*, was also produced by the two Paxton representatives. In *The Declaration of Grievances*, Smith and Gibson retold the killings at Conestoga and Lancaster from a frontier perspective.[21] While the document brought no new information to the table, the fact that it was published in several local newspapers allowed the Paxton perspective to be known by the masses. Although the Paxton Boys had been promised that their grievances would be heard, there had been no promise by the governor or the assembly to take any actions, nor were there any indications that either branch of the government intended to. Instead, both Governor Penn and the assembly heard the requests and grievances as promised, and then did what they had always done when it came to the needs of people on the frontier, absolutely nothing. The government did not stop there, after completion of the sham proceedings both Matthew Smith and James Gibson were told that their presence was no longer needed in Philadelphia and they should return to their homes in Paxton.[22] It was in this way that the Paxton Boys effectively ceased to exist. However the threat of a resurgence of the group was enough to strike fear into the hearts of nearly every Quaker. The battle between the frontiersmen to the west and the Quaker lawmakers to the east became a battle of words in pamphlet form. These pamphlets were produced by both pro-Quaker and pro-Paxton printers in such numbers that they rivaled those printed leading up to the American Revolution nearly ten years later.[23]

In the nearly 250 years that have passed since the Paxton Boys marched on Philadelphia, there has been much written about the events of that whirlwind winter of 1764-65. Before adding to the discussion, one must acknowledge an undeniable fact: the murder of twenty Conestoga tribe members was both brutal and inexcusable. There can be no attempt to justify the killing of innocent people, only an effort to explain and understand it. With that being said, an in-depth look at the legacy created and left by the Paxton Boys is required. The creation of a Paxton persona began with the statements of John Penn and the writings of Benjamin Franklin and have largely continued throughout the last 250 years. History has chosen to remember the Paxton Boys as they were painted by the brush of Franklin and his colleagues. That is to say, they have been remembered as "Christian White Savages" and little else. A sustained trend of dehumanization has followed the Paxton Boys throughout

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[21] Hindle, "The March of The Paxton Boys," 482.

[22] Hindle, "The March of The Paxton Boys," 482.

[23] Olson, "The Pamphlet War over the Paxton Boys," 31.

the annals of history. By accepting and repeating the idea that the Paxton Boys were impulsive, inhuman, uncivilized frontiersmen, many writers have overlooked essential pieces to the Paxton puzzle. One pro-Paxton pamphlet of the time acknowledged these types of labels that had been placed upon the Paxton Boys' heads and responded that the Paxton Boys considered it to be the result of, "disappropriate malice."[24] These attempts to portray the Paxton Boys as savages who were incapable of rational thought or emotion, played a pivotal role in the way the vigilantes were perceived. In all actuality, the initial attack at Conestoga and the subsequent attack at Lancaster were not the product of sudden frontier rage as they are often described, instead they were a carefully calculated political statement, albeit a bloody one. To articulate this point, a dissection of the events leading up to the murders, and directly after the march on Philadelphia, is necessary. The effects of regional conflicts, race, and political distrust, as well as other factors that contributed to the events involving the Paxton Boys, will be analyzed. During the examination of events there will be several offered explanations and connections that will ultimately prove that the Paxton Boys' primary motivation for murder was politically-based and carefully calculated.

In the years leading up to the Paxton Boys' rise to infamy, there were preexisting conflicts and disagreements between both the frontiersmen of Pennsylvania and their Quaker cousins to the east. These conflicts were born from cultural as well as religious differences.[25] It was this dysfunctional relationship with the Quaker elite that ultimately drove the Paxton Boys to drastic measures. The Paxton Boys, and frontiersmen in general, felt that their rights as British citizens were encroached upon by the very government that was charged with protecting them. After continued pleas for additional soldiers being posted in the area were ignored, the frontiersmen asked for the proper arms and provisions to allow them to defend themselves, and this too was denied. The refusal of reinforcements and equipment had more than just a material meaning to the frontiersmen, it signified a complete lack of support by the Quakers and their government. All of these slights left the frontiersmen feeling, "abused thus neglected," and they were duly convinced that the "Quaker faction was the source from whence all evil flowed."[26] If it were not enough that the government refused to aid their own, the frontiersmen found it appalling that the Quakers were willing to assist various Native American tribes. The Friendly Association, which was a Quaker invention, was one of the primary benefactors of Pennsylvania-dwelling Natives, and its stated goal was to procure and promote peaceful relations with Native

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[24] Barton, Thomas, *The Conduct of The Paxton Men* (Philadelphia: A Steuart), 1764, 9.

[25] Hindle, "The March of The Paxton Boys," 463.

[26] Barton, "The Conduct of The Paxton Men," 8.

Americans.[27] Armed with a large budget and influential members, the Association had proven time and again their willingness not only to support Christianized tribes in theory, but fiscally and physically as well.[28] In a connection that many historians have neglected, the two tribes targeted by the Paxton Boys were both either receiving aid and support from the Friendly Association and the Pennsylvania government, or they had in the past.[29] At the time of the massacre at Conestoga, under the direction of John Penn and the assembly, all of the Christianized Moravian tribe members living in and around frontier communities were being moved to the safety of Philadelphia. Falling into that category were the twenty men, women, and children whom the Paxton Boys eventually murdered. The conglomeration of other tribes that were successfully rescued and transported to Philadelphia is the purported reasoning behind the eventual march on the capital by the men from Paxton.[30] To view the connection between the two groups of Native Americans that the Paxton Boys targeted, and the Quaker-controlled government and Friendly Association, as a mere coincidence would be a grave historical injustice. The tribes at Conestoga and Providence Island were singled out for their close relationships to the Quakers of Philadelphia. Incensed by the care and protection provided to the Moravian tribe members, the frontiersmen of western Pennsylvania let their contempt towards the Pennsylvania government be written in the blood of the Quakers' treasured Native allies.[31]

Researchers of the Paxton Boys have often mentioned the color red in their writings. However, these references do not involve the color of the blood that ran onto the Pennsylvania hillside on the morning of December 14, 1763, but rather the perceived color of the skin from which the blood ran. The topic of race has been tied to the history of the Paxton Boys from their very inception. Much time and scholarship has been dedicated to proving that it was the racist tendencies of the common frontiersmen that led the Paxton Boys to murder a group of inoffensive Natives.[32] Although it would be foolish to discount the significance racism had on the relationship between frontiersmen and Native Americans, it would be just as foolish to presume that race was the only factor. It is well documented that the overgeneralization and stereotyping of Native Americans was commonplace on the Pennsylvania frontier. There are even statements written with the Paxton Boys' approval that contain

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[27] Theodore Thayer, "The Friendly Association," *The Pennsylvania Magazine of History and Biography* 67, no.4 (October 1943): 356.

[28] Hindle, "The March of The Paxton Boys," 464.

[29] Ibid., 466.

[30] Camenzind, "Violence, Race, And The Paxton Boys," 202.

[31] Thayer, "The Friendly Association," 373

[32] Vaughan, "Frontier Banditti and the Indians: The Paxton Boys Legacy 1763-65," 82.

blatant cases of racism. One such example lies in A Declaration and Remonstrance, which was authored by Matthew Smith who was one of the Paxton Boys' chosen representatives. Smith writes that, "experience has taught us that they [Natives] are all Peridious."[33] However, the argument that racism was the primary motive for the Paxton movement leaves much to be desired. "Racism," by definition, is the belief that all members of a race share similar characteristics, or the discrimination of a person or people due to the inferiority of their race. Just because it is known that at least some of the Paxton Boys were actively racist does not explain their attack on the Conestoga tribe members. Racism was an ingrained aspect of frontier culture during the late eighteenth century, meaning that the members of the Paxton Boys who were racist, had most likely been so from an early age.[34] So then, why did they choose the morning of December 16, 1764? Why did they select the peaceful Conestoga Indian town? Why did these men wait until that advanced point in their lives to suddenly come together and act upon their racist beliefs? The common answers to those questions are that the Paxton Boys were motivated by the culmination of building racist hate, and that in a fit of passionate rage they attacked the nearest Native settlement,[35] which just so happened to be the peaceful Conestoga Indian town. The specific settlement did not matter to the Paxton Boys, whose racism prevented them from knowing the difference between one tribe and the next. While this scenario is certainly possible, it is filled with assumptions and holes throughout. For example, the jump from relatively passive racism to vigilante killer without direct provocation seems quite the stretch. Another problem with the proposed racist motive is that there is evidence that relations between the Conestoga tribe members and the frontier families of surrounding towns were relatively friendly. The white children of the town freely interacted with the Conestoga, even developing close friendships with the Native children of their own age. As for the adults, it was not uncommon for them to enjoy the warmth of a farmer's fire during a cold night.[36] The relationship between the white frontiersmen and Conestoga tribe members was actually remarkably cordial considering the fresh memory of the French and Indian War in the area. The clear cut connection between the Paxton Boys and racism does not lie in the creation of a violent motive, but instead in allowing the frontiersmen to carry out their grisly deed. Thanks to the widespread racism that was prevalent throughout the colony, the Paxton Boys saw their actions as socially

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[33] Matthew Smith, *A Declaration and Remonstrance* (Philadelphia: W. Bradford, 1764), 16.

[34] Camenzind, "Violence, Race, And The Paxton Boys," 204.

[35] Nicole Eustace, "The Sentimental Paradox: Humanity and Violence on the Pennsylvania Frontier," *The William and Mary Quarterly* 65, no.1 (January 2008): 38.

[36] Barber, Rhonda. "Recollections written in 1830 of life in Lancaster County 1726-1782 and a History of settlement at Wright's Ferry, on Susquehanna River," 1830.

acceptable instead of taboo. The Paxton Boys believed that the entirety of the local populace was disappointed in the Pennsylvania government's recent handling of the Native Americans, and that the Paxton Boys' actions adhered to the will of the people.[37] While it was clearly an important factor in the way the Paxton Boys perceived their own actions, there is little to no concrete evidence that the vigilantes attacked the peaceful Conestoga solely because of racism.

Throughout the Paxton movement there was a concentrated effort on the part of the Quakers and eastern elites to paint the Paxton Boys as savage creatures who were incapable of human compassion. While speaking to the general assembly, Governor John Penn referred to the killing of the Conestoga as, "a inhuman and wicked action." The governor vowed to, "combat the fury," of the frontier group. Benjamin Franklin unleashed his renowned writing skills in a literary attack that challenged the Paxton Boys' sense of manhood, as well as highlighted their lack civilized behavior.[38] The writers of the Paxton era argued that the murders the frontier vigilantes committed were borne from their inability to control their own passion and rage.[39] It is obvious that the majority of people who pushed this argument did so in an effort to ignite the moral fiber of the Pennsylvania citizenry, in hopes that they would turn against the Paxton Boys. There are several problems with this argument, however. For the driving factor of the Conestoga murders to have been unbridled rage would have been completely out of line with the rest of their narrative. Other than the supposed passion killings of the Conestoga, the Paxton Boys showed marked restraint in every other facet of their actions.[40]

The origin of the rumored rage of the Paxton Boys depended upon the legitimacy of a story that seems to be forever changing. One of the most oft repeated versions of the story depicts the discovery of native spies in the Conestoga camp, thus necessitating the immediate eradication of the seemingly French allied population.[41] The story behind the Paxton Boys has numerous versions, one of which deals with avenging a slain mother, and another that claims the Conestoga themselves were spying and stealing on behalf of other tribes. The only consistent theme that can be gathered from the array of stories is the presence of a reason for killing the Natives. In that the stories lack a true source, and they seem to vary according to the teller, they are unreliable and untrustworthy. Perhaps there are bits and pieces of the truth buried in each story, but the Paxton

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[37] Matthew Smith, *A Declaration and Remonstrance* (Philadelphia: W. Bradford, 1764), 4-5.

[38] Benjamin Franklin, "A Narrative of the Late Massacres, in Lancaster County, of a Number of Indians, Friends of this Province," (Philadelphia: Anthony Armbruster, 1764), 25-29.

[39] Ibid., 7.

[40] Hindle, "The March of The Paxton Boys," 479.

[41] Historical Society of Pennsylvania, "The Insurrection of the Paxton Boys," *The Presbyterian Quarterly Review* (April 1860): 655-666.

Boys got what they needed from them, which was a socially justified reason for committing murder. That leaves only one reason why rage or uncontrollable fury may be suspected as the Paxton Boys' motive. The manner in which the frontiersmen murdered and defiled the bodies of the Conestogas tribe members was innately gruesome. It would be reasonably easy to mistake the tortuous treatment of the corpses as tell-tale signs of bloodlust or overflowing rage. The actual reason behind the removal of hands and feet as well as the scalping of victims was neither of the two. If imitation is indeed the highest form of flattery then the Conestoga tribe members would have been better off unflattered. The Paxton Boys were simply killing in the way that fighting two wars against Native Americans had taught them to fight. The destruction of a corpse and removal of the scalp are traditional ways of treating an enemy's body. The frontiersmen had seen this done to their neighbors and families for years.[42] In treating the bodies of the slain Conestoga as they did, the Paxton Boys were not venting their previously suppressed rage, they were treating the Native corpses in the fashion they were accustomed to seeing the victim of a Native treated. While the tales of unbridled rage were enticing to readers, there is no credible reason to believe it was the reason behind the Paxton Boys actions.

The Pennsylvania colony was split into two separate worlds, and although the citizens of the colony were British subjects, that is where the similarities ended. Divided into racial, religious, and regional sects, the colony was far from unified. In Philadelphia to the east, the wealthy Quakers managed their colony in line with their own pacifist views with little regard to outside suggestion. In the northern and western hill country, the German and Scots-Irish farmers and tradesmen begged for relief from the seemingly never-ending raids of the Delaware tribe members.[43] In an attempt to seek protection of their land and families, numerous petitions were sent to both the governor and assembly.[44] The Quaker controlled government proved inept at getting even the most basic of bills passed, creating a political log jam at the expense of the frontiersman. Having had their pleas for additional troops ignored, the frontiersmen next asked for arms and ammunition so they could defend themselves. This request was also met with skepticism and silence from the government in Philadelphia. During this same time span, the Quakers and their government were actively aiding Native Americans with gifts of money and extravagances. The aid of the Moravian Native Americans instead of the frontiersmen resulted in the deepening of

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[42] Historical Society of Pennsylvania, "The Insurrection of the Paxton Boys," *The Presbyterian Quarterly Review* (April 1860): 653-654.

[43] Ibid., 652-653.

[44] Historical Society of Pennsylvania, "The Insurrection of the Paxton Boys," *The Presbyterian Quarterly Review* (April 1860): 653-654.

an already wide rift between the two groups. Missing the military and monetary support they so desperately needed, the people of western Pennsylvania decided to take matters into their own hands.

The Paxton Boys remain an enigma nearly 250 years after they first rode together. Despite the benefit of time and countless books, journal articles, and pamphlets written on the subject over the years, many questions remain unanswered. History has long ago claimed the frontiersmen themselves, leaving behind a scattered assortment of documents for researchers to sift through in hopes of finding the missing piece to the Paxton puzzle. One primary question that has never been fully answered is, what motivated the Paxton Boys? These seemingly common frontiersmen from the western Pennsylvania hills managed to decimate a tribe of Native Americans, shake the foundation of Quaker rule, and bring the colony of Pennsylvania to the brink of civil war, in a matter of months. But why did they do these things? Did a longstanding racial resentment of Native Americans drive the Paxton Boys to attack the first Native village they came to? Were the Paxton Boys just an uncivilized rabble of frontiersmen who considered the taking of twenty innocent lives bloodsport? The answer is that the actions of the Paxton Boys were politically charged. Having endured years of hardships while the Quakers in Philadelphia idly watched, the frontiersmen from in and around Paxton made the conscious decision to get the government's attention. Hamstrung by their lack of representation in the assembly, the frontiersmen were pushed into a more unorthodox method of achieving power.

So it was that on December 14, 1763, nearly fifty men from the hamlet of Paxton murdered six Natives in an attack that was immediately followed by the murder of fourteen more innocent Conestoga tribe members just two weeks later. The murder and mutilation of the entire Conestoga tribe did not occur by chance or fate. It was the history of close alliance with the Quaker Friendly Association that resulted in their being intentionally targeted by the Paxton Boys. After decimating the Conestogas, the frontiersmen began a march toward the state capital with the rumored intent to destroy the Moravian tribe members who were being sheltered there by the government. By targeting not only one, but two of the Quakers' longest standing Native allies, the Paxton Boys made it very clear that their message was intended for Governor John Penn and the rest of the Pennsylvania government. Further proof of the political purposes of the march of the Paxton Boys lies in the fact that when offered the chance to speak with city leaders, the frontiersmen jumped at it. All the Paxton Boys requested from the Pennsylvania government was the opportunity to lay before the governor and assembly a list of complaints and grievances. The startling simplicity of this request provides insight into just how alienated the rugged hill farmers and frontiersmen of western Pennsylvania were.

Another interesting aspect of the Paxton movement was the fact that it truly became a movement. The vast majority of the state at least sympathized with the mass murderers. The people of Pennsylvania did not champion the Paxton Boys because they were ruthless, instead they applauded their attempt and success at rocking the Quaker power foundation. In the most unfortunate and grisly of ways, the Paxton Boys came to stand for a large portion of the colony and their ideals. It is regrettable that none of the members of the murdering party were ever charged or arrested. Regardless of purpose or principle, the taking of twenty innocent lives is the significant smudge on what would have otherwise been a celebrated event. Had the Paxton Boys devised a more ethical way to shock the government into attention, then the Paxton Boys would be remembered as the prerevolutionary champions of personal liberties and equal representation, instead of as the murderers of innocent people. Those same ideals of guaranteed rights and equal representation that the Paxton Boys wanted echoed throughout the colonies nearly a decade later. At that time the frontiersmen of Philadelphia once again found themselves marching to defeat a power hungry government, only this one was farther east. The word unprovoked is often used to describe the murders committed by the Paxton Boys, but that is not entirely accurate. That is not to say that the Conestogas did anything to deserve their fate, which they did not. The provocation that resulted in the Paxton Boys killing twenty men, women, and children, came not from the victims themselves but from their benefactors in Philadelphia. It was the refusal of the Quaker-led government to aid in the defense of the Scots-Irish homes or families that inspired the men to take bold and bloody measures. It was decided that if the Quakers would not listen to the pleas of the frontiersmen, then perhaps they would listen to the screams of their Native allies. Although there are still many questions involving the Paxton Boys and the tumultuous winter of 1763-1764, it is now increasingly clear that the primary motivator for their actions was the desire to make a political statement and gain the attention of the Pennsylvania government.

OMNINO

Technologies and Advances in Self-Driving Cars

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While varying implementations of self-driving cars have been in the works for decades, the technology has come a long way recently; spurred along by not only the needs of society, but also by government funded competitions. The technology offers the possibility of fundamentally changing personal transportation. Not only will it likely reduce accidents, but it could reduce energy consumption, pollution, and congestion. This paper attempts to provide an overview of the current technologies utilized in autonomous ground vehicles. While authorities have predicted the reality of self-driving cars may be available to the general public in the next ten years, there are still hurdles to be cleared. As such, current areas of research and recent advances in the field that are moving us closer to this realization are also reviewed.

I. INTRODUCTION

Self-driving cars are autonomous vehicles that are able to accomplish tasks similar to traditional cars, but are able to do this without human involvement. While they currently exist primarily as prototypes, Google's driverless cars, of which about a dozen are on the road at any given time, have completed more than 300,000 miles of accident free testing while under computer control [1].

The predicted benefits of driverless cars are enormous. With a 90% reduction in the nearly 5.5 million accidents annually in the United States alone, there would be 30,000 fewer deaths, 2 million fewer injuries, and $400 billion in accident-related cost savings. Not only that, but wasted commuting hours could be reduced by 4.8 billion, 1.8 billion gallons of fuel, and an estimated 101 billion dollars in lost productivity and fuel costs could be saved. Additionally, a reduction in the number of cars made possible by autonomous vehicle technology could reduce the cost per mile by at least 80%, increase car utilization from 5-10% to at least 75%, and reduce and improve land use [2].

To accomplish this navigation of complex situations autonomously, a combination of technologies is necessary. These technologies span many different disciplines such as computer science, electrical engineering, and robotics and controls [3]. While navigation is paramount, another essential function that self-driving cars need to perform is communication [4]. The following sections illustrate the current state of the technology and the advances that are on the horizon.

II. CURRENT TECHNOLOGIES

Typically, self-driving employs the foundation of many robotic systems, which is the "sense-plan-act" design. Raw data about the outside world and the vehicle's relation to its environment is gathered by a suite of sensors built into or attached to the vehicle. These usually include some combination of lidar, radar, cameras, infrared cameras, and ultrasonic sensors.

The weakness of any single sensor can be made up for by combining the sensors into a suite that makes use of the complimentary benefits of their fusion. The generated data is then used to make plans about the vehicle's actions. Actionable commands are then interpreted and carried out by the control system in the self-driving car. The most difficult part about developing a super reliable autonomous vehicle is not collecting the data about the environment, but in making sense of the data. Sebastian Thrun, the founder of Google's X Lab, claims that software is the key to robotic driving [5]. While sensing is handled by hardware, there are three general areas autonomous vehicle software can be broken into: perception, planning, and control.

A. Sensing

Taking raw data measurements is the responsibility of the sensors, and the most important thing a sensing system must do is to provide accurate data to distinguish between safe and unsafe driving regions [6]. To sense the static and dynamic environment, laser range finders (lidar), radar, cameras, infrared, and ultrasonic sensors in some sort of configuration and combination are typically used, as seen in The Economist's diagram below (figure 1 [7]). Most recent prototypes of self-driving cars segment a majority of the laser and vision data so the data product is smaller and easier to process [3]. With the continuing advancement in computing power, this limitation should diminish in the future.

1. Lidar

Light detection and ranging, or lidar, is one of the most important pieces of sensing hardware used in a typical self-driving car setup. Distances to obstacles are determined by emitting beams of light

and then calculating the time it takes until a reflection returns from the objects. To generate three dimensional point clouds of the surroundings, many sophisticated lidars combine the range finders with rapidly rotating mirrors. One of the most popular manufacturers of this sort of laser system is Velodyne. Their lidar sensor is designed specifically for obstacle detection and navigation of autonomous ground vehicles. They claim that it is ideal for the most demanding perception applications because it has a 360 degree field of view, a very high data rate, and is durable. To accomplish this it uses 64 fixed-mounted lasers, all mounted to a specific vertical angle, with the entire unit spinning [8].

2. Radar

Another key sensor for self-driving cars is radar, which stands for radio detection and ranging. It is similar to lidar in that to determine the range of objects in its environment it uses the signals' time of flight. However, in contrast to lidar, it uses radio waves in place of lasers, which provides radar systems with different capabilities and limitations. Typically the reflectivity limitations of radar are harsher when compared to those of lidar. Radar works well on metallic objects, such as vehicles, but when it comes to sensing nonmetallic objects such as humans, they perform poorly.

3. Cameras

To determine if a space is free or not, laser range finders and radar can be effective, but they may not have the ability to report anything useful about the quality of the terrain. This is where cameras and stereo vision systems can come in handy [9]. They can supplement incomplete map information and identify road boundaries by detecting the contrast between road and painted lines.

4. Infrared Sensors

Similar to a common camera that uses visible light to form an image, infrared sensors (or thermographic cameras) are devices that use infrared radiation to form a picture. They operate in wavelengths up to 14,000 nanometers as opposed to visible light that exists in the range of 450 to 750 nanometers. So, the detection of lane markings without light visible to the human eye is made possible by their use. They have a limitation in that their effective range for lane detection is quite low. Therefore, they are generally better for detecting lane departure than for tracking lanes. Additionally, they are quite useful for detecting pedestrians and bicycles at night.

Under the bonnet
How a self-driving car works

Signals from **GPS (global positioning system)** satellites are combined with readings from tachometers, altimeters and gyroscopes to provide more accurate positioning than is possible with GPS alone

Lidar (light detection and ranging) sensors bounce pulses of light off the surroundings. These are analysed to identify lane markings and the edges of roads

Video cameras detect traffic lights, read road signs, keep track of the position of other vehicles and look out for pedestrians and obstacles on the road

Radar sensor

Ultrasonic sensors may be used to measure the position of objects very close to the vehicle, such as curbs and other vehicles when parking

The information from all of the sensors is analysed by a **central computer** that manipulates the steering, accelerator and brakes. Its software must understand the rules of the road, both formal and informal

Radar sensors monitor the position of other vehicles nearby. Such sensors are already used in adaptive cruise-control systems

Source: *The Economist*

Fig. 1. The typical setup of a self-driving car [7]. Source: *The Economist*.

5. Ultrasonic Sensors

Working on the principle similar to radar, ultrasonic sensors identify targets by emitting high frequency sound waves and interpreting the echoes the sensor receives in return. To determine the distance to an object, the time difference from when the sound was emitted until it was received back is calculated. These sensors can provide accurate short range data which can be useful for backup warning and parking assistance systems.

6. Sensor Suites

Each of the above sensors provides different kinds of data and has its respective limitations when it comes to sensing its environment with relation to its operating conditions, field of view, and the differing types of objects it is able to detect. It is the usual practice to combine these complementary sensors into a suite because the limitations of each of these sensors is fairly well known and understood. The sensors are usually placed all around the vehicle to make sure blind spots are eliminated and to make best use of each sensor's strength in a particular placement and arrangement. Not only visual blind spots, but material blind spots need to be accounted for as well. Material

blind spots refer to the inability to detect certain properties or types of objects in the environment.

Additionally, integration of these sensors can lead to a greater perception of the environment than just simply the sum of each individual sensor's data alone. Interfacing and fusing a proliferation of sensor data in different formats with varying degrees of accuracy and resolution, and at possibly different rates, presents a challenge to designers and implementers. But successful combination of the varying sensor data makes available to the vehicle's planning system a full spectrum of traversability [9].

B. Perception

Creating usable information about the vehicle and its environment is the responsibility of the perception subsystem. This process of mapping all the important sensor data into "internal beliefs and predictions" about the vehicle's surroundings begins with the data preprocessing and fusion requirement. Vehicle pose estimation, which is made up of the vehicle's coordinates, orientation (roll, pitch, and yaw), and its velocity is the most common form of fusion. By integrating Global Positioning System (GPS) measurements, wheel odometry, and inertial measurements into Kalman filters, an accurate estimation can be achieved [5]. Mapping relative estimations, which is the vehicle location within a lane or map, also needs to be made and can typically be accomplished by using vision or laser measurements [3]. The sensor (lidar, radar, camera, etc.) data of the environment requires further preprocessing, and is analyzed to identify vertical obstacles. It uses a probabilistic test because of the noise typically found in sensor readings.

1. Tracking

Tracking is important to avoid obstacles, both stationary and moving, in a self-driving vehicle's surroundings. Local occupancy grid maps are typically built on the fly to avoid static obstacles and are identified by the sensing devices onboard the vehicle. To detect moving obstacles with the same sensors, temporal differencing is employed [5]. Temporal differencing works in such a way that if a laser scan marks a region free in one scan and then marks that same region occupied in the subsequent scan then that observation constitutes as a probable witness to a moving object.

2. Localization

Localization is typically accomplished by coupling GPS measurements with inertial navigation systems (INS). To calculate its position, a GPS receiver determines the range between itself and at least four satellites that are orbiting at about 20,000 kilometers

above the surface of the earth [6]. It triangulates these measurements to determine its global coordinates. Cross referenced with maps of the road network, these coordinates enable the vehicle to identify its location. The United States government made the GPS system fully available to the public in 2000, and since then there have been vast improvements to its accuracy. Even so, the error in readings can be up to several meters in ideal situations. These errors are exasperated even more when the system is introduced to obstacles that occlude the sensors communication with the necessary satellites. Urban areas where large buildings create "urban canyons" are of great concern and limit GPS accuracy and viability. This is why the GPS systems are typically coupled with inertial navigation systems.

INS are comprised of gyroscopes and accelerometers to continuously calculate position, orientation, and velocity of a vehicle without the need for external references. They are used to improve the accuracy of GPS and fill in the gaps when outages occur. The drawback of INS is that it is susceptible to drift, which happens when little errors over time add up to large differences between estimated and actual positions. When working optimally, the coupling of the two systems enables localization with accuracies to within a few centimeters [10]. To refine localization further, the vehicles can relate features visible in the laser scans to GPS map features.

C. Planning

The problem of making driving decisions is handled by the planning subsystem. While sensing and perception have straightforward output requirements, the path-planning challenge is far more objective and requires the integration and interpretation of that output. The choice of paths that lead to the appropriate destination and the ways to negotiate them can easily vary from normal driving to unacceptable behaviors, even when travelling safely. This is further exasperated when many routes are made available [6].

Path planners, behavior planners, and route (map) planners are the typical components included in the planning subsystem. Reasoning about the probabilistic information delivered by the perception subsystem is a key element in most planners and is usually accomplished by a finite-state machine. Additionally, an escalation planner is typically included to avoid situations in which the vehicle would stop and never proceed [3]. Escalation is accomplished by reducing or removing constraints in the planners, usually after a timer has expired. Even so, the vehicle planners are still required to act within foundational safety parameters.

D. Control

Lastly, the actuators and commands to drive the car are included in the control subsystem. Coming from a combination of the higher

level planning subsystem and direct sensing, the information for the control law is formulated. The components of driving are made up of engine control, throttle control, and the steering and brake system. Evolutions of the basic engine control and breaking system are advanced traction control (TCS) and advanced braking control (ABS). Through use of the OBDII bus and connector, which is available on all U.S. cars made after 1996, the state of these modules is made accessible and can be queried to assist maneuverability [4].

Vehicle control can be realized by either using retrofitted physical actuators or utilizing the more modern drive-by-wire equipment. According to the automotive industry, drive-by-wire technology exists as vehicle functions that are traditionally achieved by mechanical linkages and actuators are instead performed by electrical or electromechanical devices. Human-machine interfaces, such as steering wheels and pedals, are replaced with others that look and feel similar but are in reality simply "feel emulators." So, gone from the vehicle are the traditional components such as the steering column, vacuum servos, and master cylinders. An added benefit is drive-by-wire technology may be utilized to enable easier plug-and-play conversion into self-driving cars of current human-operated vehicles.

III. ADVANCES

While self-driving cars have come a long way in a short time, there are still strides to be made in the field to bring about the next era in transportation. The following sections highlight some of the topics that are in the development stages and will likely influence self-driving car technology in the near future.

A. Graceful Degradation

Graceful degradation is a well-established approach to maintain limited functionality in a system in the event of a component failure. The idea is to avoid obstacles to autonomy by operating at a reduced capacity and most likely with a different configuration. It is crucial that it be implemented in self-driving cars to avoid dangerous situations, especially when an alert backup driver is not readily available. Graceful degradation should be adjusted appropriately depending on different situations. To accomplish this, internal sensing and algorithms will need to be present in the vehicle [11]. This presents some inherent difficulties. While it is fairly straightforward to detect when a sensor completely stops working, it is another matter to detect one that occasionally sends spurious data. A simple low level and super reliable system that can use minimal sensor data to perform the basic functions of an autonomous vehicle will likely be needed. Even this proposed low level system will need to have its own monitoring. A basic solution is to move the vehicle to the side of the road and

come to a complete stop in order for a human to take control when available, but even this action can be complicated by traffic conditions and roadways.

A system that provides this service and operates on the typical framework of perception, planning, and control has been proposed. It is named SAFER and has the ability to trigger a different configuration of the remaining sensors in the event of a failure. This is made possible by using an event driven system to reduce latency, as opposed to using a system based on timed queries. Preset configurations will need to be stored in the system for numerous combination of outages because different data processing algorithms are required for various sensors. Once the configuration has been selected, the SAFER system can allocate the appropriate resources. Failure detection and recovery procedures supported by this program were shown in a case study to not cause any behavior difference at the level of autonomous driving [11].

B. Communications

While the technology currently in use does a sufficient job in sensing the environment, there are still challenges in perception that are to be overcome. If self-driving cars are ever to reach their full potential, they will need to cooperate with other vehicles by agreeing to traffic rules, whose turn it is at an intersection, and so forth [3]. To overcome some of these obstacles, researchers and developers have made suggestions for a solution. Instead of just the autonomous vehicle gathering all the data itself, what if the environment communicates to the vehicle as well. This is the grounds for vehicle-to-vehicle and vehicle-to-infrastructure communications. Utilizing the information received through communication could assist self-driving cars by informing them of road conditions, congestion, route recommendations, and traffic accidents. It could also give way to coordinated behavior that could enable platoon driving and intersection control that could lead to more efficient roadway use and fuel savings. Assisting vehicles that experience sensor failure could also be achieved through these means. The affected vehicle could receive the necessary data from other vehicles or infrastructure in its vicinity. Additionally, new types of algorithms will be possible that not only rely on the individually perceived world, but also on what is shared by others [3].

1. Vehicle to Vehicle

One of the drawbacks of a self-driving car that does not communicate with other autonomous vehicles or the surrounding infrastructure is that it can only sense the environment from its own point of view. Occlusions along the travel path can hamper a sensor's ability to recognize and record accurate data of its

surroundings. Using sensor data received through communication with others can significantly mitigate this concern [11]. Critical obstacles that could be identified may include pedestrians that are hidden from view. Additionally, each sensor has a limited range for reliability, but utilizing communication techniques to share sensor data could increase this range and facilitate a greater time period for an autonomous vehicle to plan ahead and work with other vehicles. Having access to each other's information is paramount for these reasons [10].

2. Vehicle to Infrastructure

The utilization of vehicle-to-infrastructure communication could increase traffic capacity and path vehicle density by improving the intelligence level of a single vehicle and enhancing the ability of information interaction in a transportation environment. Use of the technology could enable vehicle platoon control systems that would improve traffic safety, increase traffic controllability, and simplify traffic controlling complexity [12]. A main concern with implementing vehicle-to-infrastructure communications is the substantial initial investment that upgrading the infrastructure will require. Regardless of the costs, it may be necessary if the full potential of self-driving cars is to be realized.

3. Protocol

To achieve both vehicle-to-vehicle and vehicle-to-infrastructure communications, a protocol will need to be used. It has been suggested to use the Simple Object Access Protocol (SOAP). As a lightweight protocol in a structured and distributed environment, it is intended for exchanging information and uses Extensible Markup Language (XML) technologies. This enables SOAP to exchange information over a variety of underlying protocols and is designed to be independent of any particular programming model or semantics. Using a SOAP interface for the components of self-driving cars and infrastructure would facilitate the interoperability of autonomous navigation modules installed in each vehicle [4].

4. Technologies

The following is a review of some of the most common technologies used to facilitate wireless communications. They may be used in various combinations and configurations in self-driving vehicles. See Table I on the following page for a brief synopsis of each technology's strengths and weaknesses [13].

TABLE 1: A COMPARISON OF WIRELESS COMMUNICATIONS TECHNOLOGY

RFID 200m 1 Mbps	***Advantages:*** Quick tracking of tag location in real time, simple to install and use. ***Disadvantages:*** Difficult to read in metals and liquids, interference with cellular networks
DSRC 1000m 27 Mbps	***Advantages:*** Low deployment costs, dedicated transmission spectrum ***Disadvantages:*** Low penetration rate leads to fragmented network problems
Bluetooth 100m 480 Mbps	***Advantages:*** Already in vehicles today, easy synchronization of mobile devices ***Disadvantages:*** Consume medium power, interference with Wi-Fi
Wi-Fi 1km 600 Mbps	***Advantages:*** Dominates WLAN technology, globally accessible ***Disadvantages:*** Consume high power, suitability for mobility is low

a. RFID: Radio-frequency identification (RFID) is typically used for the purpose of automatically identifying and tracking tags that are attached to objects, and it makes use of wireless magnetic fields to transfer data. Information is stored electronically on the tags and can be accessed by a reader at short ranges, such as a few meters, by use of electromagnetic induction. To increase this range, tags can be supplied with a power source and may be read from as far away as 200 meters. The tags act as passive transponders and emit microwaves or UHF radio waves when being interrogated by a reader's electromagnetic field, and they do not have to be in the lines of sight of each other. RFID technology can be used in many different ways and has the potential to be a key contributor to the networking of autonomous transportation.

b. DSRC: Dedicated short-range communications (DSRC) was specifically designed for automotive use by the United States Department of Transportation (DOT). DSRC is one-way or two-way short to medium-range wireless communication channels that operate on a reserved communication spectrum that has a corresponding set of standards and protocols. While this technology has been central to the DOT's effort to help develop connected vehicles, it has been

under some contention because of the lack of current applications available. It, however, offers great promise because it provides fast network acquisition, low latency, high reliability, priority for safety applications, interoperability, and security and privacy.

c. Bluetooth: Another wireless technology for exchanging data over short distances is Bluetooth. It uses short wavelength radio transmissions from fixed and mobile devices to create personal area networks with high levels of security. A benefit of Bluetooth is that it can overcome the problem of synchronization and connect several devices together. It is most commonly used to enable hands-free wireless phone operation while inside of an automobile by routing incoming and outgoing calls through the vehicle's system or an earpiece. Even so, it could be used to facilitate the communication of the vehicle itself. Communication with local infrastructure could also be accomplished or it could be used to access and send information needed by the vehicle via a wireless smartphone.

d. Wi-Fi: Wi-Fi is a highly popular technology that allows a device to connect wirelessly and exchange data using the radio spectrum. It operates over a computer network which usually includes high speed Internet connections. Wi-Fi is used by many devices found today, such as, personal computers, tablets, smartphones, and video game consoles. A wireless network access point is used by these devices to connect to network resources such as the Internet, servers, printers, and other devices. The typical indoor range is about 20 meters, but when used outdoors it can reach a greater distance. This can be achieved by using multiple overlapping access points.

e. Cloud: Cloud computing is a technology that has gained popularity recently with the proliferation of mobile devices. It is more a style of computing than a means of communication itself. The cloud uses hardware and software to provide a service through the use of the Internet. Utilizing the cloud, there have been proposals of systems that would enable self-driving cars to request and access sensory information from other autonomous vehicles and static infrastructure sensors. This could be accomplished in a manner similar to how it accesses its own sensor data [14]. The cloud would enable access to a larger pool of information and could lead to safer and more efficient path planning. Blind spots could be avoided in addition to an increase in sensor range. By employing a request based system, real time sensor data over a limited bandwidth wireless link can be transmitted and would enable vehicles to gather information at various resolutions about different locations [10].

Unfortunately, the three dimensional point cloud typically generated by the vision sensors on a self-driving car are not structured in such a way and does not facilitate requests about a specific region. So, it has been proposed to process this data into an Octree data structure, which divides the sensor view recursively into cubes. This division will enable section and resolution requests. Each cube is set depending on the sensor data to be either occupied, unoccupied, or unknown. Another benefit of this approach is it may help alleviate the problem of packet loss that is inherent in wireless communications. If a packet is dropped it would lead only to a loss of resolution as opposed to a complete dismissal of information. The Octree structure also alleviates the high demand on bandwidth that data streams would require to transmit the entirety of data they generate. This could be achieved by only requesting high resolution data from areas that are of most importance to the safe navigation of the vehicle.

Carcel and *CarSpeak*, two systems that utilize cloud computing and the Octree data structure, are claimed to detect obstacles and pedestrians faster, even faster than vehicles already using an ad-hoc wireless network to share information [10]. Additionally, streaming sensory information obtained from other vehicles and infrastructure through this additional module looks just like it was generated by a local sensor on the vehicle itself. Therefore, it is able to integrate seamlessly with a vehicle's personally obtained data to create a more detailed and accurate picture.

C. INFRASTRUCTURE

While the communication to infrastructure has been discussed briefly already, there are a couple of other areas involved that could be beneficial to autonomous vehicle navigation. One of those areas is the expectation of the vehicle's surroundings and the other is the movement through its most dangerous locations.

1. Mapping

An important component that self-driving cars will rely on is mapping. As it stands, GPS does a fairly good job of accomplishing localization for us, but to increase the accuracy and bolster the safety of autonomous vehicles, more intensive mapping may be needed.

Terrestrial laser scanning systems are able to measure at accuracies of a few millimeters (when they are stationary) and have made huge strides in advancement recently. They can scan at a rate of more than 100,000 points per second and can be combined with GPS and INS to make a mobile laser scanning system (MLS). These systems are able to capture their surroundings in high detail and would work well for the production of large scale maps. Initial

results have shown that with such a map, higher levels of positioning accuracy can be obtained as opposed to the traditional GPS coupled with an inertial navigation system [15].

2. Intersection Control

One of the most hazardous areas of traversability that vehicles encounter is intersections. A system that has been suggested to increase safety and throughput involves two classes of agents. The first class is intersection managers and the second is driver agents.

An intersection manager would be responsible for reserving the space-time needed for a driver agent that has requested to traverse an intersection safely. This is for use on intersections that are managed, such as ones now that have stoplights.

For intersections that are unmanaged, such as ones with stop signs, driver agents would be required to keep up-to-date information about other vehicles in the vicinity, because of the unreliability of wireless networks. As the vehicle approaches an intersection, it would send its claim with estimated arrival time, speed, and departure time through the intersection. As long as its request was not dominated by another, it would proceed through the intersection as planned. While the vehicle is in the intersection, its claim cannot be altered, and once it has vacated the intersection, the claim will be dropped.

Researchers maintain that this protocol will significantly reduce delay and increase safety at four-way stops [16]. There are far greater numbers of unmanaged intersections compared with those that are currently governed by stoplights and would require an infrastructure upgrade. So, this proposed solution has the ability to realize more immediate results at smaller intersections if applied to autonomous vehicles. This proposal underscores the importance of communication between self-driving cars.

D. ARTIFICIAL INTELLIGENCE

Probably one of the most difficult but potentially influential areas of research in autonomous vehicles is artificial intelligence. While the sensing hardware used in self-driving cars is robust, there is a big difference between just "seeing" an object and "knowing what it is up to" [3]. Seeing and understanding the vehicle's surroundings as accurately as a human being so far has not being realized with the fusion of available hardware and software. A combination of stored memories and sensory input to interpret events and anticipate scenarios is used by humans and is extremely difficult to emulate in robotics. Current robots simply cannot compete with a human's ability to make sense of the world.

As opposed to most of the sensor hardware discussed earlier, human eyes are only passive sensors receiving reflected light to see. Even so, they are sophisticated and provide nearly all the data needed

to drive. With them humans can see in a wide range of environments, distinguish distances, recognize shapes, and classify objects, such as cars, pedestrians, and obstructions. Even so, the human eyes are not perfect and there are instances where technology can surpass its ability. It is in the perception and subsequent accurate differentiation of one's environment that a human excels and technology will continue to attempt emulation.

Additionally, humans rely almost completely on nonverbal communication when operating a vehicle. This is another challenge when designing implementations of vehicle-to-vehicle and vehicle-to-infrastructure communications. Even if a self-driving car follows the rules dictated to it, there is no guarantee that the decisions made are desirable. This is why higher level reasoning about other vehicles' behavior is important. Improved autonomous driving will require anticipation and reasoning about obstacles, and planners will need to handle uncertainties and increase the robustness and richness of perception outputs [3].

Another potential benefit to self-driving cars in the future would be their ability to learn from prior experience and mistakes, and then share that information with others. It will be difficult to implement learning algorithms when the tradeoff between safety and conservatism is considered, however. This is because failure is not acceptable when it comes to autonomous vehicle navigation. Regardless, these problems need to be solved to further increase safety, reliability, and efficiency.

IV. CONCLUSION

Sebastian Thrun may have said it best:

> The only way to turn this new type of transportation into reality is to invest massively into the vision of smart, robotic cars. The benefits to society will be enormous. We need to overcome the old belief that only people can drive cars, and embrace new modes of transportation that utilize the twenty-first century technology. When this happens, we will free up significant resources that are presently wasted in the inefficiency of today's car-based society. [5]

Not only may resources be conserved but perhaps most importantly many lives could be spared in the avoidance of needless vehicle accidents that occur so often. There are still strides to be made, but the era of self-driving cars is approaching quickly and this technology will be influential for many years to come.

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Experiencing Comedy: How Synthetic Judgment and Experience Dictate What is Funny

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This paper seeks to shed light on some of the causes for laughter. It explores the concept of "officialdom," the idea that the comedic experience arises in certain situations from a misplaced routine. The case is made that this is only possible due to the incongruities (the way in which the mind juxtaposes an object and the viewer's perceptions of the object or situation) found by the viewer between officialdom and their own experiences with said routines. Knowledge of officialdom and routine are brought about by experience, just as any other knowledge is said to be acquired. Distinctions of Immanuel Kant's concept of nature, concept of judgment, and concept of freedom are made in order to show the inseparable link between experience, knowledge, and ultimately laughter in the comedic experience. The essay also explores certain counterarguments to the use of experience and comedy using neurobiology.
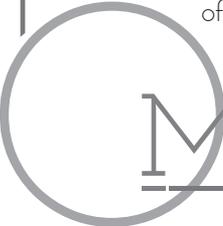
I.

Imagine yourself as a young child; you are seated in a room with your parents and their dinner guests. One of the dinner guests is relaying a story about a man he or she saw in the park. The man was walking alone down the path when his pants fell down. Everyone in the room, yourself included, breaks into raucous laughter. Much later, another friend is telling a joke derived from the internet. The tale involves a rabbi, priest, and imam walking into a bar. Your parents and their guests all await the punchline with grins and begin to laugh once it is delivered. You, however, do not laugh. What exactly causes you to laugh at the man in the park, but remain stoic to the clergy at the bar? The answer lies within knowledge and perception. This paper will argue that synthetic judgment is integral to the comedic experience and that comedy is reducible to incongruity and officialdom in order to dictate what one finds funny, and that it is

these concepts that are used to define whether one goes through a pure or impure comedic experience.

In the above thought experiment, what causes you to enjoy the first joke rather than the second, and exactly why is either of these situations funny to begin with? First, it is important to define "officialdom,"[1] as it is presented by Elmer Blistein. Officialdom is the idea that a fixed routine or an autonomously official character can bring about comedy.[2] Blistein states:

> But complete automatism is only reached in the official, for instance, who performs his duty like a mere machine, or again in the unconsciousness that marks an administrative regulation working with inexorable fatality, and setting itself up for a law of nature. It is occasionally hard to decide where important position leaves off and officialdom begins.[3]

Humans become part of this officialdom each day in the act of wearing clothing. As a human, you are taught to wear clothing and it becomes what is expected of you. It then becomes a "law of nature" with repetition and reinforcement. What makes the unfortunate man in the park so funny to everyone present at the dinner is that the "wrong kind of routine is established."[4] When it comes to officialdom in comedy, the routine itself becomes funny only when it is misplaced or superimposed onto situations where it is not quite needed. That is why people will not laugh at someone wearing clothing. It is part of the everyday routine to wear clothing in public, so it is not misplaced. The routine surrounding clothing does, in fact, become misplaced when a man's pants fall down in a park or if a fully clothed person goes into the ocean at a beach. This misplacing of a routine is what brings about a comedic experience, which results in laughter.

The idea of officialdom is present in the second joke told at the dinner as well. It would be a misplaced routine for men of the cloth to be present at a bar, and it may not be in the routine to go to meet up with one another. If this is a case of officialdom creating humor, as in the mishap with the man in the park, then why did you not laugh all the same? The issue does not lie within the routine of the clergymen, but rather your own knowledge of them, or lack thereof. As a small child you likely have little experience, if any, with bars and various religious denominations. Immanuel Kant states that "all our knowledge begins with experience, there can be no doubt."[5] It is in

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[1] Elmer M. Blistein, *Comedy in Action* (Durham: Duke UP, 1964), 12.

[2] "Comedy" in this paper will refer to comedic experience. A comedic experience is any experience in which humor or laughter arises.

[3] Ibid.

[4] Ibid., 13.

[5] Immanuel Kant, "Critique of Pure Reason," trans. J.M.D. Meiklejohn (London: Bell & Daldy, 1872), 1.

this way that we learn things. New knowledge is gained through the sensory data gathered by experience, which is done *a posteriori*.[6] Kant does not leave his definition of knowledge to rely solely on *a posteriori*. He does make the case for *a priori* knowledge, or knowledge that "we do not derive [this knowledge] immediately from experience."[7] Your parents could have taught you about alcohol at some point in your young life, and then conclusions could be drawn *a priori*, that is to say knowledge gained before experience, that holy men would not be in a bar drinking. Though you are not gaining this knowledge explicitly from your own experience, it does still derive from your parents' experience and perceptions.

As a small child, you should have no personal experience to derive the knowledge of bars and the restraints by which men of the cloth must abide, so it is unlikely that you should know about it, *a posteriori*. This lack of knowledge hinders your perception of the misplaced routines within the joke and keeps you from laughing. Age is used as an example here as a reason for having limited knowledge or having a specific perspective. For simplicity it will be the main example for this paper, but it is, of course, not the only variable that may be considered when speaking about the comedic experience and knowledge. Certain cultural backgrounds and personal experiences are also integral to the comedic experience. The reason the adults in the thought experiment are able to juxtapose their perspectives with the joke is that they have most likely encountered religious leaders in their lifetimes. If this joke were told to people from an aboriginal culture, they may not have ever encountered a religious leader or may not have the same notion of clothing as those from the Western World. Cultural differences would hinder an aboriginal person's ability to go through a comedic experience or find an incongruity within the routines of the joke.

Cultural background, age, religious affiliation, and many other variables can be important when the concept of personal experience is being considered. Specifically with the joke about the religious leaders, the offensive nature of the joke may also be a factor for some. Comedy has a long tradition of using jokes to "overturn (at least momentarily) official institutions and hierarchies of power."[8] However, the potentially offensive nature of either joke is not the focus of this discussion. What is important is the subjects' prior knowledge, their experience as it enhances their knowledge, and their ability to interpret routines and misplaced routines within the joke. Experience is vital to the comedic experience, and in many ways,

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[6] Ibid. *A posteriori* here means knowledge gained through sensory experience, also known as empirical knowledge.

[7] Ibid., 2.

[8] Nicole Matthews, *Comic Politics: Gender in Hollywood Comedy after the New Right* (Manchester University Press, 2000), 2.

dictates what it is that you find funny and not funny. Two people from different cultures both have experience with a routine found within a joke; yet they may not both laugh. One's experience may carry a difference in perception because of his or her background, but this experience with these routines is still the catalyst for the comedic experience and whether laughter occurs or not.

II.

Kant describes two sets of knowledge: analytic and synthetic judgments. The former, analytic judgments, are such that "the predicate B belongs to the subject A, as somewhat which is contained (though covertly) in the conception A."[9] According to this description, the conception of an object can be found within the identity, or definition, of the object itself. For example, "All bachelors are unmarried men." This statement is an example of analytic judgment because by the very definition of the word bachelor, one can gather *a priori* that bachelors are unmarried men. Though one can know by definition that a bachelor is an unmarried man, you cannot know the characteristics or nature of a subject through analytic judgment. To learn of the characteristics or routines of a subject, one must use synthetic judgment. A synthetic judgment arises when "the predicate B lies completely out of the conception A, although it stands in connection with it."[10] Kant provides the example "all bodies are heavy."[11] Weight is not inherently given within the definition of "body," therefore it becomes a synthetic judgment that one would need to make *a posteriori*. Synthetic judgment is primarily drawn upon when using officialdom for comedy. A character's routines will be juxtaposed with one's own experiences with what the character portrays, and these routines are found through synthetic judgment. It is in this way that synthetic judgment dictates what one would find funny. This type of judgment allows the creation of routines to be assigned to subjects from their day to day experiences. Officialdom, being the idea that a fixed routine can bring about comedy due to the misuse of that routine, relies on the audience to have made these synthetic judgments during the course of their lives. Without synthetic judgment there would be no means to create juxtaposition between the perceived routine and the routines of a character in a comedy.

With both the story about the man in the park and the joke about the clergymen, it is necessary to make a synthetic judgment. It would not be enough to know what a police officer (or something within officialdom) is by definition (analytic judgment, *a priori*). Though you are aware of what something does by definition, this grants you

[9] Kant, "Critique of Pure Reason," 7.
[10] Ibid.
[11] Ibid.

no knowledge of the personality traits associated with such person in their routine, nor how that person goes about performing their routine in the accepted or generalized manner. A person is only able to go about learning such things by synthetic judgment, which comes *a posteriori.*

This knowledge ties into the Incongruity Theory of comedy, which is vital to the relationship between officialdom and experience. Kant states that:

> In everything that is to excite a lively convulsive laugh there must be something absurd (in which the Understanding, therefore, can find no satisfaction). Laughter is an affection arising from the sudden transformation of a strained expectation into nothing. This transformation, which is certainly not enjoyable by the Understanding, yet indirectly gives it very active enjoyment for a moment. Therefore its cause must consist in the influence of the representation upon the body, and the reflex effect of this upon the mind; not, indeed, through the representation being objectively an object of gratification (for how could a delusive expectation gratify?), but simply through it as a mere play of representations bringing about an equilibrium of the vital powers in the body.[12]

It is in this way that misplaced routines are found to be funny. Differences are found between officialdom and one's perceptions of those within the routine. These incongruities are why the adults found it funny that a rabbi, priest, and imam were at a bar together. Their perception and experience with men of the cloth and bars were not connected with one another, creating an alternate routine other than that of what they were expecting. Kant gives an example of his own and explains this concept further:

> The heir of a rich relative wished to arrange for an imposing funeral, but he lamented that he could not properly succeed; "for" (said he) "the more money I give my mourners to look sad, the more cheerful they look!" When we hear this story we laugh loud, and the reason is that an expectation is suddenly transformed into nothing.[13]

It is incongruous for people at a funeral to be smiling, and this is why one would laugh at the joke. Officialdom says that there is an autonomous routine in place for mourners. One would expect, from experience, that people at funerals are upset, especially of their own accord. It would not be expected that mourners would need to be paid to look sad, and it would also be a misplaced routine for the

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[12] Immanuel Kant, "The Critique of Judgment," translated by J.H. Bernard, ed. 2 (London:Macmillan, 1914), Sec. 54.

[13] Ibid., §54.

mourners to be smiling. Because of the officialdom associated with mourners from your own experience, you would expect the story to go a certain way. When you find out that the mourners are smiling, an incongruity arises when "the expectation is suddenly transformed into nothing."

Kant creates a distinction between the "theoretical and practical."[14] The theoretical is derived from natural concepts,[15] whereas the practical comes from the concept of freedom.[16] The distinction between the two is quite vast in that they "do not limit each other in their legislation."[17] The natural concept is represented by intuition, and the concept of freedom originates within the object itself, rather than in intuition. We can relate these distinctions to comedy in the following way. Officialdom is "the mechanical encrusted on the living."[18] As one goes about their day to day routine, the set routine or characteristics become a law of nature, according to Blistein. Routines are created throughout your life and you begin to associate these routines with certain objects, professions, or situations. Officialdom, regardless of your awareness of it, is what dictates many of your routines throughout the day.

Kant says:

> It is only the principles of reason which can give to concordant phenomena the validity of laws, and it is only when experiment is directed by these rational principles that it can have any real utility. Reason must approach nature with the view, indeed, of receiving information from it, not, however, in the character of a pupil, who listens to all that his master chooses to tell him, but in that of a judge, who compels the witnesses to reply to those questions which he himself thinks fit to propose.[19]

This distinction makes officialdom part of the concept of nature. Reason, or the concept of judgment, relies on the information given by officialdom. One would use the concept of judgment to analyze the incongruity between two routines; one coming from one's own experience, the other from officialdom. Officialdom then, as a natural law, becomes part of the theoretical philosophy. Laughter then falls under the concept of freedom. It is the practical side of his distinction, and is contingent upon the object of humor, rather

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[14] Ibid., II.

[15] This is also known as "natural law." A natural law is a concept that we, according to Kant, understand a *priori* through necessity and is often found in mathematics and the sciences on which empirical concepts are based. Ibid., II.

[16] The concept of freedom creates causality regarding the will. Ibid., I.

[17] Ibid., II.

[18] Blistein, 13.

[19] Kant, "Critique of Pure Reason," xxvii.

than an intuition (which in this case would be officialdom). You find something humorous, and then begin to laugh and grant practicality to the object.

How then, can the concept of officialdom truly be related to laughter, when it is stated by Kant that "no transition is possible from the first to the second?"[20] In order to rectify this problem, he creates the concept of judgment.

Kant states:

> Here now is a pleasure, which, like all pleasure or pain that is not produced through the concept of freedom (i.e., through the preceding determination of the higher faculties of desire by pure Reason), can never be comprehended from concepts, as necessarily bound up with the representation of an object. It must always be cognised as combined with this only by means of reflective perception; and, consequently, like all empirical judgements, it can declare no objective necessity and lay claim to no *a priori* validity. But the judgement of taste also claims, as every other empirical judgement does, to be valid for every one; and in spite of its inner contingency this is always possible. The strange and irregular thing is that it is not an empirical concept, but a feeling of pleasure (consequently not a concept at all), which by the judgement of taste is attributed to every one,—just as if it were a predicate bound up with the cognition of the Object—and which is connected with the representation thereof.[21]

It is in this way that the concept of judgment "furnishes the mediating concept between the concepts of nature and that of freedom."[22] Judgment is the bridge between the law of nature and the concept of freedom. It is in this way that the Incongruity Theory becomes essential. It has been stated that this theory is the use of experience and perception in order to associate officialdom with humor. Officialdom, a natural concept, would be otherwise disassociated with humor and laughter, a concept of freedom, if it were not for the judgment of the Incongruity Theory. These concepts together create a formula for the comedic experience. A person creates routines for objects as they interact with them from day to day using synthetic judgment (*a posteriori* knowledge). An object is then used in a joke or other comedy medium, and as an autonomous character, it serves a fixed routine in the comedy according to the concept of officialdom, which is a concept of nature and part of theoretical reasoning. When interacting with the comedy, viewers notice incongruities between the character and their own perceived

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20   Ibid.
21   Ibid., III.
22   Ibid.

experiences with that character in their day to day life. Judgment and practical reasoning then cause the viewer to find the comedy funny or not, thereby linking theoretical and practical reasoning and creating an empirical truth for comedy.

III.

Now that it has been established that the Incongruity Theory is integral to the comedic experience, in that it allows a link between officialdom and the comedic experience, it can be properly stated that experience is just as necessary. Officialdom relies on experience and synthetic judgment to create a comedic experience through the Incongruity Theory, and it can be concluded that *a posteriori* experience is explicitly necessary for this brand of comedy. Kant makes the argument that without the possibility of experience, "*a priori* synthetic propositions are absolutely impossible."[23] Regarding a pure *a priori* synthetic argument,[24] it is impossible to debate the validity of the argument without calling upon one's experience, for without experience "they have no meaning."[25] It is in this manner that experience, Incongruity Theory, and officialdom are inseparable.

For Winifred Smith, the importance of experience stems from the fact that comedic experiences are "of the same types as all other successful experiences."[26] For Smith, it takes the same conscious experience to realize that something is funny as it does for a child to figure out why a glove fits on their hand. Smith claims that "in both instances a slightly uncomfortable puzzle is being solved by a perception of the similarity and difference in two sets of things."[27] The Incongruity Theory is necessarily present in cases of officialdom humor where the misplacing of routines are the climax of the joke; however, Smith's insights can be used to build a case in which all comedy is intertwined within incongruity and experience. This definition chooses to concern itself with two sets of things, rather than specifically officialdom. Simple juxtaposition or a viewer watching a character handle a situation similarly or differently to their own experiences would inspire laughter. However, officialdom can be

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[23] Kant, "Critique of Pure Reason," 118-119.

[24] Pure in this sense relates to the distinction Kant makes between pure and impure *a priori* statements. Impure ones relies on indirect experience, as shown in the example of the parents teaching the child about alcohol and allowing the child to make inferences *a priori* about why the clergymen would not be in a bar. The pure does not rely on experience whatsoever, directly or indirectly, which Kant confines to mathematics.

[25] Ibid., 118.

[26] Winifred Smith, "Comedy and the Comic Experience," in *Psychological Bulletin*, vol. 7, no.3, 85.

[27] Ibid., 86.

expanded in a way to encompass all instances of incongruities within the comedic experience. Smith believes that the comedic experience is no different than any other type of experience. This supports the idea that synthetic judgment can be used in order to define a routine in the officialdom of a character. This knowledge would be brought about in the same way as any other synthetic judgment made in one's day to day experiences.

As a concept of nature, no human is able to escape the processes associated with officialdom. When looking at social norms or experience of a society as a whole, it is little more than a series of interconnected personal routines that influence one another. Officialdom is prevalent on the macro and micro levels of society. In this way, officialdom is within all comedy, and society's experiences and routines as a whole create a standard for the comedic experience. Smith states that "those lighter problems which because they have been partly worked out by society, are more familiar, are freer from emotion and therefore capable of an intellectual solution."[28] This process of puzzle solving, which follows from problem to solution in comedy, arises from the situations interacting with officialdom on any level in order to create the juxtaposition necessary for comedy. This familiarity comes from experience, which allows for the incongruities that create laughter, thus creating an inability to separate the two.

For Arthur DuBois, comedy is "always social."[29] It is impossible to separate the distinctions and incongruity between two objects in comedy. However, by his definition of social, there is no restriction stating that situations in comedy may only involve people. It is "social" by the notion that two somethings are interacting and being compared, be it person, situations, objects, or ideas. Comic or comedic experiences are shown as "resulting from a sense of incongruity."[30] Specifically, it is the "awareness of two things at once"[31] that creates the desired effect. Primarily, the comedic experience derives from the duality between the theoretical and the subject's judgment. The awareness between officialdom and incongruity create the comedic experience. This awareness results in the "intellectual solution" that Smith speaks of. Comedy, being "always social" derives itself from these problems that have been roughly worked out by society, and result in the intellectual solution brought about by the awareness of the experience and the incongruities within the problem and the comedy. The idea of comedy being always social is important to consider, not just concerning the interaction of two objects for incongruity, but for the intellectual solution as well. Social interaction

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[28] Ibid.
[29] Arthur E. DuBois, "Comedy, an Experience," in *ELH*, vol. 7, no. 3 (1940), 203.
[30] Ibid., 204.
[31] Ibid.

bringing about such a solution is how the comedic experience can encourage conversations that may otherwise be difficult to bring up. For example, think of your experiences with police officers. There is no doubt that these experiences and your thoughts about the behavior of cops will be, at most, subjective, but the importance here is that they are, in fact, experiences. This is a social experience, one in which through the laws of nature you are creating a set of values to categorize police officers within a routine. These sets of values[32] from this experience directly affect your perception of the police. Now, how does this relate to comedy?

This comedic tradition goes back as far as (and before) William Shakespeare in his work "Much Ado About Nothing." Constable Dogberry, the head policing official in the play, is inept in the majority of his appearances. His misuses of words, or malapropisms, are apparent throughout. He says, "Our watch, sir, have indeed comprehended two auspicious persons"[33] when he means to use "apprehended" and "suspicious." He is also as terrible at his duties as an investigator as he is with his use of language. During an interrogation, the Sexton says, "Master constable, you go not the way to examine: you must call forth the watch that are their accusers."[34] To which Dogberry replies, "Yea, marry. That is the eftest way. Let the watch come forth. Masters, I charge you, in the prince's name, accuse these men."[35] Shakespeare makes use of officialdom with Dogberry. The constable is an autonomously official character and brings about comedy through the way that his antics are incongruent with what is considered proper or the perceived behavior of a constable.

When viewing a television show about police officers, you will now (consciously or unconsciously) use the concept of judgment to draw a link between the natural law of officialdom and the concept of freedom that results in laughter. When watching an episode of Dragnet, you may realize that there are incongruities between the character Joe Friday and your own experience with a traffic stop. In the episode "The Badge Racket," the viewer sees Joe Friday and his partner in their investigation to apprehend a group of con-men who are impersonating vice officers. At the police station, as well as on patrols, Friday and his partner wear a full suit and tie, something that would certainly not be synonymous with the uniforms of police officers today. Friday is very straight laced, monotone, and has an unforgiving attitude when it comes to the law. In the end, when apprehending the suspects at the station, he relays that the two in

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[32] I.e. the officer's tone, mannerisms, seriousness, willingness to issue a warning, demeanor, language, physical appearance, etc.

[33] William Shakespeare, *Much Ado About Nothing*, ed. Barbara A. Mowat and Paul Werstine (New York: Washington Square Press, 2005), 119.

[34] Shakespeare, 149

[35] Ibid.

custody made one mistake, "they thought they worked here,"[36] as an attempt at straight faced humor. The clothing, the voice, the no-nonsense attitude may seem quite foreign in your own experience with a police officer, sparking laughter. This act of comedy derives from the linking of the concept of nature (officialdom) and the concept of freedom (comedic experience) through the incongruities that are highlighted from your perception of the show based on your experience.

The same can be said of the other end of the spectrum of television cops. In an episode of Reno 911! entitled "Terrorist Training,"[37] a struggle with their own con-men is seen. The episode involves a couple of "Homeland Security Officers" known as Captain Dwayne Hernandez and Lieutenant Susy Kim haphazardly training the Reno crew with farcical antiterrorism training exercises. After a week full of bumbling around and failing tests, it is reported at the end of the episode that the station was robbed blind and the "Homeland Security Officers" were con-men known as "Spanish Mike" Alverez and Sammy Heung. As opposed to Joe Friday, these officers wear the modern Sheriff's Department uniforms, with the exception of Lieutenant Dangle, who wears a pair of extremely small and tight shorts with his uniform. The officers are also all shown to be entirely incompetent throughout the episode and are conned by their con-men instead of capturing them. Their reliance on dirty humor, farcical situations, dress code violations, and ineptitude create misplaced routines, once again creating an incongruity that inspires laughter in the viewer, based on his or her previous experiences with police officers.

Incongruity is the vehicle that allows exchange between officialdom and laughter, and relies on one's own personal experience to create this concept of judgment. Within officialdom there is no inherent definition pertaining to the routines or subjects; it is merely a statement declaring the necessity of perception and comparison to create a comedic experience. These perceptions that officialdom rely on come purely from one's own experiences within a routine, allowing a standard of knowledge on the subject to be created that can be used in the comparisons that bring about comedic experiences. For all of this, the key lies within experience.

IV.

There are, however, arguments against the use of experience as the catalyst for comedy. A study has shown that our brains categorize something as "funny" before we experience laughter or consciously acknowledge something as humorous. Yasuhito Sawahata's study claims to have:

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[36] *Dragnet*, DVD, directed by Jack Webb (1967: Popflix, 2009).

[37] *Reno 911!*, DVD, directed by Michael Patrick Jann (2006: Lark Haper Productions, 2011).

Examined fMRI activity while audiences listened to several humorous short stories, and showed that humor-related mental states correlated with activity in distinct brain areas; incongruity detection, resolution and elaboration of humor were respectively involved in the right middle temporal gyrus and right medial frontal gyrus, the left superior frontal gyrus[38] and left inferior parietal lobule,[39] and the left ventromedial prefrontal cortex,[40] the bilateral parahippocampal gyri[41] and the bilateral amygdala.[42] Such physiological measurements for experiencing humor should be of value to the creators of comedy shows and movies, because it would help them to know the detailed reactions of audiences and the objective value of their products.[43] (see Figure 1)

The study indicated that physical effects in the brain are reliable predictors of when someone was about to laugh, or when their brain would decide to categorize something as humorous. They also found that the brain was predicting events of humor "more than two seconds before"[44] the actual reactions to the stimulus. The argument here is that your brain categorizes something as humorous before you are even aware of the joke and even seconds before you laugh. This seemingly disrupts the need for the element of personal experience, if your mind detects the humor before your consciousness. However, this need not be an interruption in the slightest.

The study relies on "incongruity detection," as stated in the description of the above experiment. It can only follow in their conclusion that he "suggest that it is important to make a viewer expect a humorous event and then give him or her a punch line within a few seconds to induce laughter efficiently."[45] The connection between the viewer expectations and the punchline upholds the duality of the concept of nature and the concept of freedom. The incongruity detection that lights up on the MRI is the concept of judgment being shown during the experiment. Test subjects are given a stimulus to observe, one that in some way relates to a personal experience of routine (officialdom); the subjects' brains create a distinction between the officialdom and their own experiences

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[38] Itzhak Fried, et al, "Electric Current Stimulates Laughter," *Nature* 391, no. 6668 (1998): 650. During a study involving electric current treatments, it was found that stimulating the superior frontal gyrus causes the subject to laugh.

[39] Concerned with language and perception of emotions.

[40] Associated with decision making and emotional responses.

[41] Part of the limbic system and concerned with memory retrieval.

[42] Decision making, processing memory, and emotions.

[43] Yasuhito Sawahata, "Decoding Humor Experiences From Brain Activity of People Viewing Comedy Movies," *PLoS ONE* 8, no 12 (2013), 1.

[44] Ibid., 6.

[45] Ibid., 8.

(incongruity/judgment); it is then followed by the punchline which confirms the incongruity in a practical manner, and the phenomenon is shown through laughter (concept of freedom). Despite "predicting upcoming humor,"[46] implying that the humor is highlighted before the conscious experience of a joke, it has been shown that due to the reliance on "incongruity detection," experience remains the catalyst to comedy. This study could also be used to make a more effective comedic experience. If enough data is gathered, then it may be possible to create a more universal standard of comedy. Certain words, subjects, or types of jokes and set ups may be more applicable as a whole to subjects, regardless of how variables relate to the routines within the joke. This could influence comedians and how they create their stand up dialogues or even how sitcoms and other mediums of comedy reach out to their audiences.

On the other hand, Campbell argues that experience actually hinders the response to humor. He claims that "too much experience"[47] creates a demarcation between those repeatedly exposed to a joke and those who are exposed to the joke for the first time. The study shows that those who are exposed to a joke repeatedly are often unlikely to believe that anyone else will think it is funny and do not relay the joke later. These "misperceptions of the observers"[48] are seen as problematic to the sharing of comedic experience. However, the argument for experience as the basis of comedy is not affected because the problems with over-experience only pertain to subjection to the same exact stimulus over and over.

For example, a person would no doubt tire of hearing the dinner joke about the clergymen at the bar after repeated exposure just as a mother becomes desensitized to the cries of children or a trash collector to the smell of garbage. Repeated experience no doubt alters your perception of a stimulus, but in this case, over-experience only pertains to the joke itself rather than the comedic experience as a whole. Experience is essential to comedy and the way that a person translates routine into laughter. Experience grants the knowledge that allows the differences between the officialdom and the characters to be shown. In this regard, more experience means only more knowledge. It may alter perceptions pertaining to the routine or officialdom in question, but not to the comedic experience itself. The deterioration of perception only arises after a subject has been exposed to a joke, and from then on is reliant on the joke itself rather than the initial experience within officialdom needed to create a comedic experience in the first place. Like the MRI study, Campbell's argument can be used to support incongruity

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[46] Ibid.

[47] Troy Campbell, "Too Much Experience: A Desensitization Bias in Emotional Perspective Taking," in *Journal of Personality and Social Psychology*, 106, no. 2 (2014), 272.

[48] Campbell, 280.

as part of the comedic experience. Though Campbell claims that over-experience can hinder comedy, it may still serve as additional data. For Sawahata's study, subjects were exposed to a joke for the first time in order to see how the brain reacts. In Campbell's case, a joke being repeated over and over may mean that there is something worth noting within the formula for the joke. Though the topic of the joke may become dull to a person who has heard it multiple times, others clearly continuously find something amusing about the joke and feel the need to share. The overall formula or set-up for the joke could be valuable enough to recreate if it is successful, and it would be wise to note such an idea for the improvement of the comedic experience.

Though it is shown that experience is the key to comedy, where this experience comes from is also an issue. This paper has mainly focused its arguments on synthetic arguments that are *a posteriori*, as set up in section II. However, in section I, it is stated that as a child you may have been able to understand the bar joke through knowledge given to you by your parents *a priori*, and without your own personal experiences contributing to the newfound knowledge. To reconcile these two modes of experience, it is necessary to create a distinction between pure comedic experience and impure comedic experience.

One undergoes a pure comedic experience when incongruities can be found within a routine created *a posteriori.* It is pure in the sense that your laughter comes from your own experiences and your own perception based on those experiences. The adults sharing in the laughter of the clergy joke are participating in a pure comedic experience. As the child, who is ignorant of the subject and relies on the experiences of the parents to create their perspective, you experience an impure comedic experience. Though you are able to understand the joke and use your judgment to link officialdom with laughter, it is not done so on the grounds of your own perceptions that are pulled from your own experiences with those routines, but rather your perceptions based on someone else's definitions of the routine.

This distinction between the pure and impure comedic experience can also be valuable for a comedian, or comedy as a whole. Someone would no doubt have stronger emotions towards a situation that they have experienced themselves. For example, a person who lived through a historical event would most likely have a more passionate response to a conversation concerning the event than their counterpart who has only read about the event. Comedy could be argued to work in the same way. Audience members at a comedy show who experience a pure comedic experience likely have a more passionate reaction to a joke and laugh harder, as opposed to someone undergoing an impure comedic experience. A touring comedian may be able to use locations to predict the experiences

of the potential audience. Using this information they can tailor their routine to the audience and attempt to have purer comedic experiences in the group. This concept, in use with research from studies like the one conducted by Sawahata, could work to create a more universal standard for comedy.

Comedy has been shown to be reliant on the differences between subjects, as something that is always social. It relies on relationships and society's experiences with certain issues in order to create officialdom on both the macro and micro levels. Regarding officialdom, our knowledge and perception arise from personal experience (or in impure cases, the relayed experiences of others) through the concept of nature and are translated into laughter by the concept of judgment. This relationship between officialdom, incongruity, and humor is essential to the comedic experience, but even this relationship would be nothing without a basis in experience.

Illustration
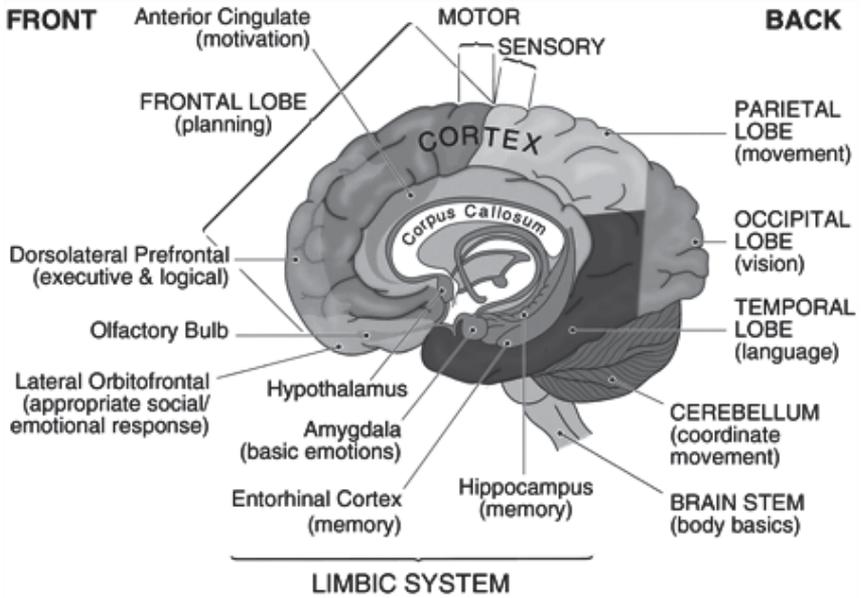
FIGURE 1: EXPLANATIONS AND LOCATIONS OF MENTIONED PARTS OF THE BRAIN. The right middle temporal gyrus and the right medial frontal gyrus are associated with processes of recollection of information, visual perception, and language. Both of these are located within the Frontal Lobe of the brain. Also located in the Frontal Lobe, the left superior frontal gyrus, is involved with the feeling of amusement and sensory processing. The left inferior parietal lobule is located within Broca's area of the Frontal Lobe, and deals with language and the perception of emotions. Located more closely to the dorsolateral prefrontal area of the Frontal Lobe, the left ventromedial prefrontal cortex is associated with decision making and emotional responses. The bilateral parahippocampal gyri are located within the Limbic System and are concerned with memory retrieval and creation. The bilateral amygdala is a part of the Limbic System that controls decision making, processing memories, and emotions.
Source: http://www.millerplace.k12.ny.us/webpages/lmiller/photos/636532/Brain%20 Parts%20Diagram.bmp

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OMNINO

Tunisia and the Arab Spring: Democracy on the Horizon?

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With the onset of the Arab Spring in 2011, the global community watched as nation after nation dove into a flood of protests, regime after regime began to collapse, and Tweet after Tweet was sent. Many wonder, and indeed question whether the events that transpired are the 3rd wave of democratization. Three years later, with several Arab Spring nations still deadlocked in a military occupation or a bloody civil war, one nation remains an anomaly in the mix of endless coups and protests. Tunisia conducted a rather tame revolution, came out in tremendous numbers to elect an assembly, and has now passed a rather secular Constitution for an Arab nation. After three years and a 180 degree turn from full authoritative rule to the possible development of a new democracy, political scientists wonder what is next for Tunisia: will the democracy be a sustainable government in Tunisia's future? Will popular support of the assembly continue? What about the role of Islam in the new republic? Will it be possible for Islam to be adapted into this form of government? In this study, these questions are analyzed and a potential model for the newly developing republic in Tunisia is discussed.
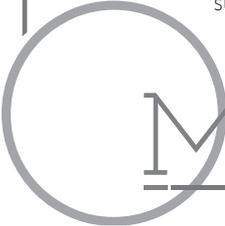
METHODOLOGY

In this paper, I start out by examining the historical background of Tunisia in the relative modern era: beginning around the mid-1800s and up until the end of Ben Ali's Presidency. Then, I take a closer look into the Jasmine Revolution in Tunisia, which quickly developed into the Arab Spring. Finally, I glance into the future by providing a suggested model for the Tunisian Republic's movement forward. After careful analysis, I contend that adopting the Western Democratic model would be the best way forward (specifically a hybridized model drawing certain attributes from both the American and British models). Finally, I conclude by discussing future challenges facing Tunisia and my hopes for the nation to become a model for other aspiring Arab nations moving away from the Arab Spring.

INTRODUCTION

"Ash-shabyuridisa at an-nixam:" this was one of the major slogans of the protestors in the Arab World as it entered what we now know as the Arab Spring (Ogbonnaya, 2013, p. 5). Translated into English, the phrase has a simple meaning: "the will of the people is to bring down the regime." With the onset of the Arab Spring in 2011, the global community watched as nation after nation dove into a flood of protests, regimes began to collapse, and Tweet after Tweet was sent. Many wonder, and indeed question, whether the events that transpired are the 3rd wave of democratization. Still gazing over the events that continue to transpire in 2015, the future is significantly obscure, but one fact remains clear: the Arab world will never be the same again.

Four years later, with several Arab Spring nations still deadlocked in a military occupation or a bloody civil war, one nation remains an anomaly in the mix of endless coups and protests. Tunisia overthrew its leader in a significantly tame revolution, compared to others in the Arab World. In addition, the nation came out in tremendous numbers to elect an assembly, which has now passed a new Constitution for Tunisia. In three years, the nation of Tunisia has done an almost full 180 degree turn from full authoritative rule to the possible development of a new democracy. However, significant challenges still exist for the nation: will the democracy be a sustainable government into Tunisia's future? Will popular support of the assembly continue? Will the constitution be upheld, or tossed aside as another authoritarian regime seizes power over the nation? What about the role of Islam in the new republic? Will Islam be adapted into this form of government? In this study, I attempt to answer all of these questions and provide a potential model for the newly developing republic in Tunisia.

HISTORY

After breaking away from the Ottoman Empire, it was the French who decided to take an interest in the state of Tunisia. They began moving into Tunisia in 1837, but did not gain full territorial oversight until Tunisia became a protectorate of France in 1881: this is when the social life and economic sphere began to feel French influence play a more significant role. Tunisians responded to French oversight with the development of "nationalist and modernist movements" who sought to stand "against Western values." The first organized opposition group was called the "Young Tunisians," but it was quickly dismissed by the French protectorate (Akar Yüksel and Bịngöl, 2013, p. 313).

Leading the resistance against colonial rule, Habib Bourguiba kept the movement alive and led the charge of reform in Tunisia. Bourguiba was able to "reinforce the nationalist struggle against the French Protectorate under the Dustur (Constitutional) Party." Leading

onward, Bourguiba would eventually make the call for independence in 1934, which led to the development of the Neo-Dustur Party, a more modern derivative of the Constitutional Party. Finally in 1956, modern Tunisia was established as Bourguiba became the president and the new constitution was developed (Akar Yüksel and Bıngöl, 2013, p. 313).

However, the events after 1956 did not transpire as the Tunisians expected. While the nation had several attempts at industrialization, no significant developments ever came to fruition. In addition, Bourguiba made the decision to select those closest to him for higher positions in Tunisia's government, rather than relying on the democratic process. As a result, the party grew increasingly intertwined with the state. This caused many citizens to be less hopeful for a democratic future in their nation and increasingly disinterested with the party and the heroic achievements it brought to Tunisia (Akar Yüksel and Bıngöl, 2013, p. 313).

Such discontent continued to grow until it eventually led to the bloodless coup of the government by Zine El Abidine Ben Ali in November of 1987. After becoming President, Ben Ali declared a change for Tunisia: "Tunisians were ready for participation, pluralism, and a multiparty system and also for 'the differentiation of the government and politics from other spheres of social life." It was in 1994 when parties in opposition to the ruling party were allowed to take seats in the parliament, under the guidance of a National Pact that promoted pluralism (Akar Yüksel and Bıngöl, 2013, p. 314).

Coming into office, Ben Ali promoted his new ideas for Tunisia, which included increased freedom, pluralism, and democratic reform. However, in a very short amount of time, Ben Ali began and oversaw an intense crackdown on both civil society and opposition groups. Ben Ali began to develop a significant political base by concentrating power in a small group of individuals, many of whom were his own family, by granting them a large share in "nearly every sector of the economy." This was very different from the style of Bourguiba, who cemented power by extensively networking with Tunisia's powerful elites. Eventually, Ben Ali would govern with a sense of insecurity and paranoia: he would often fire political leaders and foreign ministers "who showed too much leadership or gained too much popular support" for fear of competition. Following suit, his oversight in daily affairs became significantly more micromanaged as he aimed to play a much more dominate role in everyday governance (Hamid, 2011, p. 111).

In terms of economics, Ben Ali's approach to governing Tunisia appeared beneficial in many ways. His country was "hailed as an economic success story, with an impressive annual GDP growth of around 5 percent, comparatively high standards of living, and a sizable middle class;" the managing editor of the International Monetary Fund called the Tunisian economy "an example for emerging counties" and

the World Bank called it a "top reformer" (Hamid, 2011, p. 111). However, the interior told a very different story. The much more economical successful coastal cities began to grow and develop, while the poorer interior remained largely unchanged (Hamid, 2011, p. 111). Thus, a noticeable level of inequality began to develop and came to fruition with some riots on unemployment in 2008 (Akar Yüksel and Bịngöl, 2013, p. 315). These riots were eventually suppressed by the Ben Ali regime, but the dissent remained; these feelings would finally come to a head as the basis for protest in the Jasmine Revolution.

THE ARAB SPRING

Mohamed Bouazizi, a street vendor, operated a fruit cart as the sole means of supporting his family of eight in Tunisia. After the Tunisian Police confiscated his cart for operating it on the streets, his act of frustration would forever change the course of history. At 11:30 A.M. on December 17, 2010, a humiliated Mohamed Bouazizi set himself on fire, in an act of self-immolation, to "protest police harassment of his efforts to make a living" (Mallon, 2011, p. 13). With Twitter and the internet by his side, the images of Bouazizi's act of self-immolation spread like wildfire and began the mobilization of millions. Tunisia, and much of the Arab World, was ready for change. Embodied in Bouazizi's actions, they saw the "yearning for social and economic dignity" they so desired. The time for change was upon them (Lesch, 2014, p. 62). From Sidi Bouzid, the hometown of Bouazizi, the protests began as the "People's revolt for jobs and bread" (Akar Yüksel and Bịngöl, 2013, p. 315). Quickly, the numerous marginalized people in Tunisia who were "unemployed, hungry, and hopeless" began to revolt against the Ben Ali administration (Akar Yüksel and Bịngöl, 2013, p. 315). The protests spread like wildfire to "the already mobilized miners of Gasfa in the south" and "residents of impoverished towns in the far north such as Thala" (Lesch, 2014, p. 62).

As Akar Yüksel and Bịngöl (315, 2013) stated in their paper, "the answer from the government was bloody." In Thala, as the aforementioned protests grew, the security forces fired on parents and their children as they shouted, "Yes to bread and water, no to Ben Ali" (Lesch, 2014, p. 62). It had long been the policy of the Ben Ali regime to place the blame for the protests on the leaders of Islamic groups; however, most of said groups' leaders were imprisoned or forced into exile by the Ben Ali administration (Hamid, 2011, p. 112). Due to the spontaneity of the protests and the lack of identifiable leadership, "the regime resorted to brute force" (Hamid, 2011, p. 112). In the U. N. report, an estimated 300 people were killed, which was initially considered a relatively high number for a nation of 10 million total people (Hamid, 2011, p. 112). In retrospect, however, the Tunisian protests were not as bloody as others that would follow. But, for

Tunisians, these actions did little to quiet the protests; if anything, the actions further instigated the protests (Hamid, 2011, p. 112).

Aspiring to change, the protests continued to grow. On January 6th, there was a lawyers' strike which began in Tunis that was quickly followed by the young working class rallying to attack police stations and businesses. Perhaps to send a message about inequality, the protesters "looted mansions, banks, and stores in the wealthy Hammamet resort, especially targeting properties belonging to Ben Ali's notoriously corrupt relatives." As protesters continued to flood the streets of Tunis and Sfax on January 12th, "activists in the powerful trade-union movement declared a general strike for January 14th" citing poverty, unemployment, and corruption as the rationality behind the strike. In a hasty reaction to the news, Ben Ali made a decree to create 350,000 jobs and promised significant socioeconomic reform, yet ordered the Tunisian army into the streets at the same time (Lesch, 2014, p. 62). In a significant turn of events, the Army's Chief of Staff "not only refused to fire on protestors, but also asserted that the army would confront the police if they continued to" fire upon Tunisian civilians (Lesch, 2014, p. 62-63). Taking it a step further, the Chief of Staff Rachid Ammar took center stage in Casbah Square in Tunis and told the mass of protestors that he would be the "guarantor of the revolution" (Hamid, 2011, p. 112). When he presented Ben Ali with the ultimatum of prison or exile: the regime had come to an end (Lesch, 2014, p. 62).

AFTER THE ARAB SPRING: THE FUTURE OF TUNISIA

As with all nations that were impacted by the Arab Spring, political scientists and interested parties everywhere looked on with a single, solitary question: what should happen next? For Tunisia, the Jasmine Revolution was certainly short-lived when compared to other conflicts that continue to go on at present. Tunisia is a very interesting case due its quick overthrow of Ben Ali and their positive movements forward. However, Tunisia still contains issues that must be dealt with and several questions that remain unanswered. The most significant debate for Tunisia is what is the best way for them to move forward?

The extraordinary mix of factors that exist in Tunisia has been noted by several authors, including Maddy-Weitzman (2011, p. 1) who described the nation as having four key factors that will lead it to a "relatively successful democratization." These factors include: "a compact, well-defined national entity, a modernization process that has produced a substantial, educated middle class, a tradition of active civil society, and a small-sized, non-politicized military" (Maddy-Weitzman, 2011, p. 1). While I believe these factors are critical in defining Tunisia's success, my analysis will be directed towards the governmental model that I contend will work best within the Tunisian Republic as it seeks to move forward.

For several reasons, the best possible choice for the Tunisian Republic to adopt as the new governmental model is the Western Democratic model, adopting specific attributes from both the British style model and the American style model. First and foremost, both the British and the American democratic models are centered on a Constitution. In Tunisia, the nation has a long history of operating with constitutions, and the recent passage of the new Tunisian Constitution reinforces the manner in which the Tunisian people want to begin. Secondly, the British model, being a Parliamentary system, requires both popular participation, as well as the representation of several interest groups. The Tunisian Republic has shown aspects of both of these in recent history. Third, the British system has a clearly defined relationship with an established church. With Islam being such a big uncertainty in the transitional period for Arab Spring nations, establishing a national religion (rather than an established church) that would operate in a similar form as the British style model would be the best way to integrate Islam as the national religion into a democratic system.

Constitutional-Based Model.

Tunisia has an extended history with constitutions, as it was the first country in Africa to adopt a written one in 1864 (Bix, 2010, p. 322). This constitution existed under the French protectorate, which was aimed at protecting the property rights of French citizens (Akar Yüksel and Bịngöl, 2013, p. 318). After the independence movement, a second constitution was installed in 1959, which was upheld until the Jasmine Revolution and the deposition of Ben Ali. The 1959 constitution included "clear references for a strong government and a weak legislation including weak council organs" (Akar Yüksel and Bịngöl, 2013, p. 318). In addition, it was clear that the pervious constitution had significant shortcomings. First, the legislative power is the responsibility of the President, rather than a sovereign public. Only to make matters worse, the nomination of governmental officials comes directly from the President (Akar Yüksel and Bịngöl, 2013, p. 318). Additionally, the power to "dismiss the government and even dissolve the parliament" also remained under the jurisdiction of the President himself, which created an alleged democratic council that was "far from being effective" (Akar Yüksel and Bịngöl, 2013, p. 318). With these aspects of the 1959 document in mind, it comes as no surprise that Tunisia quickly became an authoritative system under this document.

Following the Jasmine Revolution, the Tunisian populace made positive efforts toward a new and much improved constitutional system. Almost right after the transitional government received power; they elected a 216 member assembly, known as the National Constituent Assembly, to begin drafting the new constitution. After two

years in the making and three different drafts, the Tunisian National Constituent Assembly approved the new Tunisian constitution on January 26, 2014: three years after the Jasmine Revolution (Gall, 2014). In the end, the document "passed with 200 votes of the 216 members present in the assembly, easily obtaining the necessary two-thirds majority needed for ratification:" with only "12 assembly members voted against the charter" and four abstentions (Gall, 2014). With regards to the aforementioned shortcomings, it is clear that the then new Tunisian constitution has significantly reduced the possibility of such power becoming corrupted. In Article 3, it states: "The people possess sovereignty and are the source of all powers, which they shall exercise through their freely elected representatives or by referendum" (Constitution of Tunisia). In addition, the entirety of Chapter 3 (Article 50-70) is dedicated to outlining Legislative Power, whereas Chapter 4 (Article 71-101) is solely related to Executive Authority, within which there are two clear and separate sections for the President and the Government to show they are altogether different entities (Constitution of Tunisia).

Considering the elaborate nature with which the Tunisian Constitution was written, the Western Democratic model seems like a natural fit for Tunisia. While both the American and British democracies have a written constitution, the methodology of Tunisia's National Constituent Assembly seems to indicate a preference towards the American model, rather than its British counterpart. The British model is a summation of laws and statutes passed by the national lawmaking bodies, whereas the foundation for the American model exists as a single, written document that can be amended if necessary. Bearing in mind that the Constitution of Tunisia went through three drafts and took two years to complete, the implication is that those within the 216-member assembly were determined to craft a long-standing document. For that reason, the constitutional aspect of the new Tunisian government should draw inspiration from the American constitutional model.

Participation and Interest Groups.

It is true that the 216 members of the National Constituent Assembly had determination in persevering through the hardships of the drafting process. The fortitude of that assembly shows those individuals want everyone's voices to be heard through their representatives. The best way forward is with a parliamentary system based around a constitution, such as the British model. One can hardly imagine democracy flourishing without the different perspectives on issues of several interest groups, as well as significant participation from the populace. Some would even argue that these are clear prerequisites for a flourishing democracy. If Tunisia aims to become a democratic state by following the Western democratic model, it will

have to contain these two critical aspects. It seems promising that Tunisia will continue to contain these attributes.

When the polls were opened for the election of the 216 member National Constituent Assembly, the results were outstanding: an unprecedented "90% of those registered to vote showed up at the polls" (Atzori, 2011, p. 18). Combined with the wide-spread enthusiasm in the campaigns leading up to the elections, Tunisians are heavily involved in participating, as they finally seize the opportunity to have their voices heard (Atzori, 2011, p. 18). In the election, four major political parties with differing views were elected into the Tunisia Assembly. The An Nahda (Ennahda) Party, which is the "moderate Islamist or center right party," received the most significant number of seats at 89. Coming in second was the Congress Party for the Republic, which is the general secular, center leftist party, with 37 seats in the Assembly. The Demands of Public Party was rooted in the An Nahda, but broke away in 1992; this party advocates for a democratic constitution, human rights, and received 29 seats in the Assembly. Finally, the Democratic Forum Party, which remains a secular party and retains membership in Socialist International, obtained 26 seats. An additional 20 seats were obtained by the Progressive Ettakatol Party and the remaining 37 seats were given to other political parties (Akar Yüksel and Bįngöl, 2013, p. 319).

With a member of the An Nahda party becoming the new Prime Minister, the Presidency given to a CPR member, and an Ettaktol member obtaining the Presidency of the Constitutional Assembly, the dominance of one political party seems highly unlikely (Atzori, 2011, p. 18). Plus, the right to establish freely a political party in Tunisia is guaranteed under the newly ratified constitution (Constitution of Tunisia). In this manner, each of the parties will have to work in conjunction to achieve the desired ends in the Tunisian parliament. This method is how the British system works: no one party has enough clout to obtain the necessary numbers to pass legislation on its own. In lieu of this, political parties must collaborate and achieve consensus to obtain the desired outcomes. The variances in the assembly and the large number of political parties are two of the biggest reasons why the British model is an ideal fit for Tunisia's future Assembly, as opposed to the system of the United States which only contains two political parties. These two aspects, when combined, appear to be a token example of the British model at work. With the individual parties seeking to reach consensus on the political direction of post-Ben Ali Tunisia, the future of Tunisian democracy could not be brighter.

Role of Islam.

One of the most highly debated issues when it comes to democracies in the Middle East is how the role of Islam can be incorporated. Some even argue that "the Islamic point of view cannot

be congruent with the Western concepts of democracy, secularism, or liberalism" (Akar Yüksel and Bįngöl, 2013, p. 320). However, Islam will certainly play a significant role in whatever type of government is established in the Middle East, regardless of location. Islam plays a huge role in the Arab World and Tunisia is no exception to this notion. The very first Article of the Constitution of Tunisia states: "Tunisia is a free, independent and sovereign state. Islam is her religion, Arabic its language, and the republic its system. This article cannot be amended" (Constitution of Tunisia). Therefore, according to the newly developed document, Tunisia is going into uncharted territory: the adaptation of Islam into a republic has never been done before.

This new adaptation is probably the most important reason why the British model would work well in the newly developed Tunisian Republic. The United Kingdom is a constitutional monarchy, but a key reason it would serve well as a model is completely outside of the political system: it has an "established church" (Mallon, 2011, p. 15). The Church of England has existed as the official church of the United Kingdom since 1534. Although, it has met with setbacks, the two bodies have coexisted for nearly 500 years. With that notion in mind, "Islam is no more or less compatible with democracy than is Christianity, Judaism, or Buddhism (Mallon, 2011, p. 16). Therefore, there is no reason why Tunisia could not be successful in integrating Islam into a democratic system as a nationalized religion, while following the British model as a guide. Of course there is a significant difference between having a nationally established religion and an established church. The Church of England represents a certain division of Christianity, whereas Islam encompasses numerous variations of that religion. However, the British model of incorporating a religion, even just one variation, can serve as a valuable guide to the pursuits of Tunisia. Both nations aim at having a certain faith play a role in their countries while still maintaining the clarification of secularism within the state. For this reason, the British model of democracy is a guide for the role of Islam in the path forward for Tunisia.

CONCLUSION

Whether it shall succeed or fall, the Tunisian experiment with Islam and democracy will be an interesting one to follow. Tunisia has come a long way in terms of governmental progress in an unprecedented amount of time. From the times of Bourguiba and Ben Ali, the majority of the independent nation's time has been spent under authoritative rule. Yet, Tunisia stands at the cusp of democracy a mere four years after the Arab Spring began within its borders. After careful analysis, a hybrid of the Western Democratic model—drawing attributes from both the United States and the United Kingdom—is the ideal movement forward for the Tunisian Republic. Its high support, significant numbers of interest groups, and the integration of Islam into the republican style of government make this model the best candidate. If democracy should succeed in Tunisia, it will be the leading example for Arab Spring nations, both across the globe and nearby. Tunisia will have successfully navigated though the transitional phase following the Arab Spring and successfully incorporated nationalized Islam into a democratic system. Peter Baker of the New York Times called Tunisia "the only real bright spot remaining from the Arab Spring" (Baker, 2015). While the spot still shines brightly, significant challenges lie ahead for the nation. Democracy has never been easy, as many other nations will attest. As Tunisians stand facing the dawn of democracy, it is with the firmest hopes that the world will one day look upon Tunisia as the genesis of the Arab Spring and the first nation to develop successfully a democracy in the Arab World.

Postscript: On October 9, 2015, The Nobel Peace Prize was awarded to the The National Dialogue Quartet, which included the Tunisian General Labor Union, the Tunisian Confederation of Industry, Trade, and Handicrafts, the Tunisian Human Rights League, and the Tunisian Order of Lawyers, for their contribution of moving Tunisia closer to democracy and peace.

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The Historical Oppression of Native Culture and Its Effect on the Issue of Healthcare Between Western and Native Societies

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Native American societies and Western society have a history, in the United States, riddled with confrontation. Historically, the strife between the two societies led to the subjugation and oppression of Native American communities. Today, the United States must attend to the remnants of this historical contention as well as to the new conflicts arising from prejudice and discrimination. Chief among these modern conflicts is the maltreatment of Natives within a dysfunctional healthcare system resulting from opposing concepts of health and wellness assumed within each society. In addition to Western and Native cultures holding significantly different views on healthcare, the history of oppression Native communities experienced at the hand of Western society has contributed significantly to the failed healthcare system currently implemented. As a result, the two cultures, while occupying the same land, remain distinct and separate. The first section of this paper focuses on the history of Native American oppression in the United States, specifically addressing issues in research methodology, stereotyping, and education, and how they contribute to the current issues of healthcare; the second section focuses specifically on how differences in culture relate to differences in healthcare systems.

BACKGROUND: A HISTORY OF CONFLICT

Many of the current issues between Native American and Western societies have complicated histories.[1] Therefore, it is important to explore the origins of these issues in order to understand properly the conflicts in their entirety. Research into Native American cultures, issues of stereotyping, and the American educational system have all played integral parts in the subjugation of Native Americans. As a result, issues such as the dysfunctional healthcare system persist, in part, because of a history permeated with ignorance and racism.

Research

Research, being the foundation of academia, poses many conflicts in the study of Indigenous communities. Scholars are beginning to address some of the problems found in the research methods of Native American cultures. Native American cultures, while often categorized together, consist of distinct groups in separate communities. As Lovern and Locust explain, "there is no single way of being Indigenous any more than there is a single way to be Western" (33). Often research does not take this fact into account, which results in inaccurate information and the bolstering of many stereotypical images observed in today's media. McDonald argues that, "There is a widely held view that research has often been harmful to indigenous peoples" (643). With the recent acknowledgment of these issues, the reliability of certain research methods has been brought into question (Mcdonald 643). An Indigenous Research Forum was held at the University of Newcastle, Australia in 2004, in which the prevailing consensus reported that research is conducted to benefit the researcher, that interpretations are often incorrect, that there is little feedback after the research is completed, and that outcomes often create more harm than good for those studied (Dunbar 91). This inadequacy of data collecting methods found in the research of Native communities and the resulting misrepresentation has led, specifically in the education system, to a skewed depiction of Native culture. In relation to healthcare, because there is an absence

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[1] While it is acknowledged that there are over 500 federally recognized Native American tribes within the United States, each with their own specific history, culture, spirituality, and knowledge, for the purposes of this paper some generalizations will be made in order to compare Western and Native societies. This paper in no way intends to insult or degrade individual Native communities, but rather works to use some commonalities within many Native communities, specifically in regards to ideas of health and spirituality, in order to explore the differences between Native and Western societies. It is my hope that each Native community will understand the pure intentions of this approach and forgive any overgeneralizations.

of interest in Native culture, Western society makes no attempt to adapt a system more suitable to Native communities and individuals.

As a result of deficient research, a prominent issue contributing to current Indigenous racism is a lack of awareness of Native American community and tribal differences. There is little Indigenous cultural competency, so people do not make the connection that, for example, when a team is called "The Redskins" and endorsed by a red cartoon character covered in paint and feathers, it is undeniably racist and offensive. If another race, ethnicity, or cultural group were portrayed in such a way, there would be a substantial response from society toward the persons responsible requiring that they be held accountable. Society, however, is so desensitized to Indigenous stereotypes that there is a certain level of comfort in this ignorance. As Carol Locust states, "the dominant culture's lack of understanding . . . leads to discrimination against Indian people" (Locust 19). Careless and inattentive research methods play a major role in the history of Native subjugation and continue to perpetuate the problematic stereotyping leading to the many modern issues. In the discussion of healthcare, inadequate research within Native communities directly translates into inadequate healthcare options and treatments.

Stereotyping

Vine Deloria specifically addresses the issue of stereotyping in Native American cultures in his work God is Red, writing, "Where other fields of literature have so successfully enabled people to sympathize with conditions and cultural variances, novels about Indians have been notably bereft of the ability to invoke sympathy" (Deloria, God is Red 24-25). Rather, these literary works continue to promote the stereotypical images popularly observed in current Western society. Romance novels are some of the worst examples of literature that continually promotes the stereotypical images of Native women as the ideal exotic lover. Elise Marubbio, in her book Killing the Indian Maiden, also addresses how Native American women have been portrayed in the media throughout history (viiii). Likewise, Native Americans have been stereotypically and inaccurately portrayed in films as well, as the documentary film Reel Injun comedically demonstrates (Diamond, Reel Injun). Prejudiced depictions of Native Americans are also problematic in education, which is a result of the inaccurate portrayal of Native people and cultures in the media. Subsequently, Native individuals are left "trapped between tribal values . . . and the values that have been taught in schools and churches . . ." (Deloria, God is Red 243). This struggle for identity is then translated into all aspects of the Native community, including healthcare. Spector explains, "Many of the old ways of diagnosing and treating illness have not survived the migration and changing ways of the people" (285).

In addition, "modern health-care facilities are not always available" (285). As a result, Native communities are left without any healthcare from the government (despite the fact that it is guaranteed under governmental policies) or the ability to treat the illnesses traditionally. The underassessment of Native health rights and the implementation of those rights pose severe threats to communities and individuals, furthering the cultural gap with which Native individuals must contend (Barnsley 44).

In addition to underassessment, it is often the case that surveys of Native American communities ". . . may be severely biased due to racial misclassification on death certificates and health records" (Galloway 7). Often, misclassification occurs when Native people and the American government differ in classification definitions. In order for an individual to be officially recognized as Native by the U.S. government, that individual must meet certain standards to qualify for a Certificate of Degree of Indian Blood (CDIB) from the Bureau of Indian Affairs. This certificate is essentially a numbering system given to all registered Native Americans, not unlike the numbering system administered to the Jews during the Holocaust.[2] Without this CDIB card and status given by the government, the individual is excluded from certain rights and benefits given to Native Americans by the government. The issue is that Native Americans do not classify the legitimacy of a Native American by the same standards as the government, which includes criteria such as: blood quantum, family history, and residency. As a result, those considered Native American by the Native community may not be considered Native American by the government. When this happens, that individual is denied the rights and benefits guaranteed under law. The individual also faces the emotional struggle of not being recognized by the dominate society as a member of the particular culture and religion with which they identify. Additionally, many individuals who do not follow traditional Native practices and do not participate in their Native community receive benefits only because they meet the qualifications given by the federal government. The technicalities of this qualification system for Native Americans have been a major component in their struggle for proper healthcare. The amount and type of aid given by the government depends greatly on the classification of the individual.

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[2] The United States' history with Native Americans parallels significantly with Hitler's history with Jewish people during the Holocaust. "Hitler's concept of concentration camps as well as his practicality of genocide owed much, so he claimed, to his studies of English and United States history. He admired the camps for Boer prisoners in South Africa and for the Indians in the Wild West; and often praised to his inner circle the efficiency of America's extermination—by starvation and uneven combat—of the red savages who could not be tamed by captivity" (Toland 702).

Education

The American education system has historically supported Western domination. While one may typically think that education leads to clarity and understanding, in the case of Native Americans, education has often resulted in racism and inequality. As mentioned previously, the educational system can further support stereotyping and leave individuals struggling to retain their cultural identity. In the late nineteenth century, the U.S. began forcing, through violence and coercion, Native American children into Western boarding schools. As Reyhner states, "While parents sometimes voluntarily sent their children to Indian schools and a few students even ran away to school, the process was traumatic for most Indian children" (169). The sole purpose of the boarding schools was literally to "educate" away the existence of Native American cultures. Not only did these schools often succeed in doing so, but they also used harsh and ironically uncivilized ways to achieve this end. Jon Reyhner and Jeanne Eder, in their book American Indian Education, quote Hoke Denetsosie, a Navajo Indian, who describes his experience in a boarding school:

> Conditions at the school were terrible . . . We were underfed . . . there were epidemics of sickness . . . When students made mistakes they often were slapped or whipped by the disciplinarian who usually carried a piece of rope in his hip pocket. (168)

From the very beginning, education programs for Native Americans fell short of anything resembling help or support, despite the popular belief amongst the non-Indigenous that they were providing many beneficial opportunities to Native Americans. In 1885, the superintendent of Indian schools pushed this idea by stating, "[t]he reservation boarding school may be made a great civilizer of Indian children, and at the same time be used to reflect some of the light of civilization into the Indigenous camp" (Adams 31). Since the establishment of these boarding schools and even into the school programs today, education in the United States has been incompatible with, and oppressing to, Native American cultures and individuals. As Deloria states:

> The push for education in the last generation has done more to erode the sense of Indian identity than any integration program the government previously attempted. The irony of the situation is that Indians truly believed that by seeking a better life for their children through education, much could be accomplished. College and graduate education, however, have now created a generation of technicians and professionals who also happen to have Indian blood. (Deloria 1995, 2)

The influence of Western society has also invaded and corrupted many Native communities themselves. In order to adapt to the Western society which was forced onto them, and to survive the resulting poverty and oppression, Native American communities have often been forced to hide sacred practices or diminish them to marred versions for profit. What were once sacred and private religious ceremonies have been turned into extravagant, exotic luxuries for the public. Deloria writes, "Sweat lodges conducted for $50, peyote meetings conducted for $1,500, medicine drums for $300, weekend workshops and vision quests for $500 . . . [t]he consumer society is indeed consuming everything in its path" ("The World We Used to Live In" xvii). In addition, there is debate among many tribes to disenroll members in an attempt to limit the number of people accessing federal money. Not only is this practice contrary to traditional Native American cultural norms, but the practice also creates substantial problems for those individuals as they are then denied access to a large portion of their culture. This selling of culture further contributes to the already substantial loss of cultural identity. Deloria explains that, "the secularity of the society in which [Native people] live must share considerable blame in the erosion of spiritual powers of all traditions, since our society has become a parody of social interactions lacking even the aspect of civility" (Deloria, 2006 xviii).

In addition to dynamic social and behavioral changes within Native communities, there continue to be significant physical changes affecting the health of many Indigenous people. "The restructuring of lives forced a reliance on government and Western commodities that were foreign and disruptive" (Lovern 225). New foods were introduced and, in some cases, boarding schools were forced upon Native Americans. Not only was the food an unfamiliar diet causing many negative physical reactions within the body, but often the food was of such poor quality that it provided no nutrients for proper sustainability.[3] In their work, Lovern and Costello describe first-hand accounts of individuals who suffered these experiences: "We ate the foods we were given because it was all we had, but it didn't stop death it only brought it in a different form. We didn't die of starvation; we died of bad hearts, bad blood and other things from the food" (225).

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[3] The term "sustainability" here is used to refer to the physical effects of foreign food on Native cultures. Because Native people were unfamiliar with the Western food that was forced onto them, their bodies reacted negatively. The food itself was also of very poor quality so many Native people had negative physical reactions because of a lack of nutrients. While not all Native people introduced to these foreign foods died, many people did die and even more were forced to contend with severe physical ailments as a result. In addition, many Native people suffered spiritual harm. Taking away their traditional diet further separated them from their land and culture, causing spiritual disharmony.

The forcing of Western society onto Native culture caused just as much physical and health-related issues as it did social imbalance.

Recently, there has been an attempt to reverse some of the discrimination and oppression exhibited towards Native culture. Some scholars are beginning to note the importance of gaining Native American insight through a first-hand experience. "Indigenous involvement in research processes is considered an issue of rigor and is a key to developing effective interventions for addressing health inequalities" (McDonald 643). Chris Cunningham explains that "increasing recognition of diversity is not enough, because it fails to deliver equality" (1210). Research must go beyond simply recognizing differences between Native and Western societies and begin to include different methodologies and research designs. The first step is to create awareness of cultural stereotyping and racism in current academic and medical research both in terms of projects and methodology. That alone would be an improvement, but as Cunningham explains, it is not enough simply to talk about these issues. All people have to make the effort consciously to abolish offensive stereotyping and the racist condemnation of Native American cultural and spiritual practices. In this way, it seems that Native Americans fall noticeably behind in the race for equality. While other groups and cultures are actively working to make changes for equality, Native Americans are still struggling simply to make the general public aware of the racism and subjugation towards their culture. Lee Irwin calls for a "dialogue approach," and yet, "A dialogical approach can only be effective if scholars are willing to hear and to think in terms of alternative (non-western) epistemologies" (Irwin, "American Indian Religious Traditions" 890). There is reluctance in Western society, however, to acknowledge the legitimacy and rights of Native American practices. "The consequences of representation (and misrepresentation) by non-Native "others" have helped to create a climate of caution and mistrust that only additional generations of reciprocal care, listening, and responsiveness can fully heal" (Irwin, "Themes in Native Spirituality" 309).

In relation to healthcare, cultural understanding and respect have profound influences on the treatment of Native American people. Cultural differences must be addressed in order to effectively maintain the rights of all people. With the understanding that miscommunication, largely resulting from cultural differences, is at the center of many conflicts, the question is then, how has miscommunication led to at best cultural identity loss and at worst genocide? The next section of this paper will address this question by examining a few of the cultural differences specifically relating to the issues of healthcare between the Native and Western cultures which lead to the many conflicts between the two societies.

COMPARISON OF WESTERN AND NATIVE HEALTHCARE

Healthcare is an issue within Native communities that affects the daily lives of individuals as well as reflects the broader issues of racism and equality. With a better understanding of the history between Western and Native societies, one can begin to see how that history plays a significant role in issues seen today, such as healthcare. Native and Western societies hold such differing views of health that discussion often results in further tension and distrust. Adding to this tension is the recognition that each Native community has its own individual set of ideas and practices regarding health. This recognition is significant in the campaign for a more accommodating healthcare system. However, for the purposes of this paper, this section will focus on the general concepts of health shared within Native communities in an effort to compare Western and Native health ideals and practices.[4]

Issues of Time and Space

Contributing factors affecting views of health are the concepts of time and space. Both cultures have significantly different views of space and time which influence the foundation of their societies. Deloria, in his book God Is Red, explains how "American Indians hold their lands as having the highest possible meaning, and all their statements are made with this reference point in mind" (61). He continues "[w]hen one group is concerned with the philosophical problem of space and the other with the philosophical problem of time, then the statements of either group do not make much sense when transferred from one context to the other without the proper consideration of what is taking place" (61-62). In the Indigenous view, "[l]and is more than a physical place. It is an idea that engages knowledge and contextualizes knowing" (Meyer 219). The Western temporal approach centers on the idea of chronology and the linear history of events, whereas ". . . a chronological description of reality is not a dominant factor in any tribal conception of either time or history" (Deloria, God is Red 97). Ideas of health and illness within the Western chronological approach then become a timeline of initial affliction, duration of the illness, and final expulsion of the illness. While this approach is often effective in dealing with curable illnesses, patients suffering from chronic pain, or an illness for which there is no cure, cannot operate under this approach to healing. The

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[4] *In her work, Carol Locust explains 10 concepts of Native culture which she describes as "applicable to the majority of tribal members" (7). She explains that these commonalities are used when researching Native cultures and in the comparison between Native and Western societies. For more information see her work entitled "Wounding the Spirit: Discrimination and Traditional American Indian Belief Systems."*

option of a "cure" is not available. Without this opportunity, many patients face feelings of hopelessness and must then deal with what Stoltzfus and Green call the "second illness." This term describes the "social, cultural, and religious responses to disease" and the effects it has on an individual (23). In Western society, if one cannot follow the typical chronological course of illness, then that individual is considered to be going against the norm of society. That individual is then permanently labeled as different or abnormal with all the problems associated with the term.

The Native American concept of time is not linear and the resulting view of health is different from the Western view. "The concept of spirit, body, and mind interacting in humans is basic to most Indian beliefs and traditional healing methods" (Locust 11). The Native American idea of health and illness is seen more as a balancing act. The ideal state of health is an overall state of balance and harmony. "Harmony is the peaceful, tranquil state of knowing all is well with one's spirit, mind, and body" (Locust 12). Illness, even if only the physical symptoms are present, is seen as an imbalance somewhere in the mind, body, or spirit. The specific timeline of the illness is not essential because health and illness are states which are constantly in flux. Maintaining balance and health is a continuous and daily endeavor. This view of health may be more beneficial to patients suffering from chronic illness. Rather than working to conform to Western society's image of an optimum state of health, patients learn to manage their illness and live a much better quality of life.

These fundamental differences in the concept of health create the many tensions between Western and Native Societies. One significant difference in the approach to health between Western and Native societies is that Western society holds the concept that health is the absence of illness. The Native concept of healing, however, does not require the absence of illness. Rather, it requires a balance with the illness. Because of this requirement for balance, it is important for Native individuals to find meaning in the experience of illness. In other words, finding meaning in illness means actively changing one's mindset to an overall more positive outlook. A focus on other positive aspects of the individual's life rather than on the negative aspects of the illness is one defining element in the Native American approach to health and wellness. In addition to changing one's outlook, according to Native practice, one can also change the energy of the body. "According to Indian belief, as explained by Rolling Thunder, the human body is divided into two halves: these halves are seen as plus and minus" (Spector 278). The two parts, while imagined as separate, are complementary. The end result is that the whole self/being is examined together, and, according to Spector, one can actively control the energy of the body through spiritual means (278). This duality demonstrates the Indigenous connection between spirituality and health.

In traditional Native American societies, there is not the social stigma associated with disease or illness. One is simply considered to have an imbalance which needs to be addressed. An individual suffering from disease or illness is not seen as lesser or disabled. "Many Native American languages lack specific words for 'disabled', 'crippled' or other types of 'handicaps'" (Lovern 85). The traditional practice held by Native Americans is that individuals work every day to maintain balance and an overall state of health. Because every person is different, maintaining balance means something different for every individual. For this reason, Native American communities do not see an individual as disabled, but rather recognize the individual for the abilities that they do possess (Lovern 89). An example of this cultural trait can be seen in the story of the elderly Hopi woman given by Locust and Lovern:

> . . . she was born with severe Kyphoscoliosis, yet she was not "disabled". During an interview, the younger sister of the woman described her as having been "small" and "had a lot of pain in her legs and back". No mention was made of a "deformity", "handicap", or "disability". Rather the condition seemed to be viewed as merely a chronic illness that sometimes prevented the woman from doing her chores. In the eyes of her community, she was valuable and special because she was an excellent piki (wafer-thin bread) maker . . . . (89)

As Deloria explains, it can be very difficult to discuss or imagine a foundational concept, such as space and time, which is different from one's own. However, failure to understand the different concepts leads to miscommunication and results in cultural conflict. In short, the fundamental differences in perspective between Western society and Native American culture are largely attributed to miscommunication as well as, in some cases, a lack of effort by the dominant society to attempt to understand alternative perspectives.

Spirituality and Health

In addition to language barriers and the resultant miscommunication, there is the added challenge involving definitions of the terms "health" and "spirituality." There is no universally accepted definition for either term. Though these words may be difficult to define, it is clear that culture plays a significant role in understanding both, rendering them essential in the comparison of healthcare between Native and Western societies. As Robin Ridington states, "spirituality is both intensely personal and distinctly cultural" (467). As previously mentioned, for Indigenous people, there is no separation between spirituality and health; there is only an abstract distinction between mind, body, and spirit when considering health

issues. This holistic approach to health places more emphasis and responsibility on the patient to maintain a healthy and balanced state. The Native American idea of health looks at the whole person and focusses on the idea of inner balance and harmony. A lack of balance is considered to be the cause of the illness and a symptom of spiritual disharmony. It is therefore necessary to fix the underlying spiritual cause of the illness or the physical symptoms will prevail. Imbalance allows weakness in the body energy which in turn allows illness or injury to occur (Lovern 84).

Western society, in contrast, tends to separate all three–mind, body, and spirit–from one another in terms of function and purpose. In the Western view, medicine is conceived as being in the realm of science and body while religion is in the realm of spirituality. The two, while connected, are often separated in the practice of medicine. When either mind or spirit is considered, it is usually in terms of comforting a patient, but often not as a mode of treatment. Recently, however, there has been a growing emphasis on holistic healing in the United States, though it still remains somewhat taboo in mainstream Western society. More commonly, doctors are trained to address the physical manifestations of problems. A foundational principle of Western medicine is to categorize and separate. This idea is partly derived from Aristotle who opened the door to categorization with his classification of species (McKeon 665). This classification was foundational in the development of Western medicine. Accordingly, the current medical approach attempts to narrow down the list of possible explanations until the problem or illness is isolated. "Western science is founded upon the premises of objectivity, abstraction, weighing, and measuring. 'If it cannot be tested, it does not exist!' is an often voiced credo of the mainstream scientist" (Cajete 491). This approach leaves little consideration for anything outside of the physical realm. It has, however, obviously proven effective in many cases as it has been implemented for years and is the core of Western healthcare. However, continuously isolating and categorizing the body into parts can lead to a sort of "tunnel vision" where one fails to see an underlying problem and does not view the patient as a whole. Regardless of the success of this medical approach in Western society, it is an entirely foreign concept in Native society and one under which Native individuals and communities cannot function.

CONCLUSION

The blatant shortcomings of research and cultural diplomacy exerted by Western society towards Native communities are fueled by a history of careless oppression and have led to the current lack of cultural competency. For the survival of Native communities and culture, it is essential that Western society begins to advance its cultural awareness and understanding of Native American practices.

The issue of healthcare is prominent, but, in many ways, it represents the significant issues already present between Native and Western societies. A racially motivated dismissal of Native culture has secured a healthcare system that discounts legitimate health practices for non-rational reasons. While the inclusion of both cultures into the healthcare system would substantially benefit the Native communities, perhaps Western society could also benefit from Native American cultural practices of spirituality and health.

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Masculine Empire in Haggard's *She*

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This article focuses on the sense of empire that flows throughout H. Rider Haggard's *She*. On this basis, I argue that the patriarchy ingrained into Victorian Britain served as a driving force for increased imperialism during the era, and this notion of patriarchy openly connected successful empire to male power. Haggard keeps the two male heroes, Holly and Leo, Englishmen, in constant conflict with the white African queen, Ayesha, who has successfully ruled an entire society through terror for hundreds of years, along with the African people and landscape that they interact with. Based on these facts, I will further my claim of white masculine empire and make suggestions towards the issues of gender and race which were reflected through England's increased colonization. Haggard's *She* does not merely serve as an adventure novel with an evil female ruler at the center of an ancient African civilization who threatens the seemingly good English explorers, but it also reflects the gender and racial essentialisms that existed under the British Empire.

During the Victorian era, the British Empire, which had long ruled, was at its height as colonization and exploration pushed it increasingly into areas such as Africa and India. Despite this country's rule under a powerful female head, increasing notions of patriarchy flourished under the Victorian empire, notions Neil E. Hultgren refers to as the "dual issues of gender and imperialism" (647). As a result of this powerful sense of patriarchy, to the tropes of masculinity and empire often appear in Victorian literary works. H. Rider Haggard effectively explores these concepts in *She*, an adventure novel about a group of Englishmen exploring the depths of Africa in search of an immortal female queen. Even though *She* was composed towards the end of the Victorian era in 1887, it fully encompasses the gender and race essentialisms of England at the time, effectively portraying the significant connection between white masculinity and empire that underscored British imperialism for centuries.

Through the course of the Victorian era, notions of manhood and race were significantly intertwined in the concept of empire, creating an overwhelming sense of duty to colonize nonwhite, uncivilized areas in order to increase awareness of patriarchal England's global domination. Racial essentialism served as a driving force for this sense of duty in the British Empire; colonizers often viewed nonwhite nations as wild areas that could be molded into Victorian colonies. According to Madhudaya Sinha, it was the job of "the white, 'modern', imperial hunter, to ponder on the primitive sublimity of the landscape, and, at the same time, to understand that the role of humbling that primitiveness is assigned to the Englishman" during the Victorian era (32-33). In other words, the role of the white Victorian male was to colonize, and essentially push Victorian ideals, including patriarchy, into areas that had not adopted such practices. This colonial mindset is accurately presented in the novel when Holly is surprised by the Amahagger tribe's lack of strong patriarchy. Holly admits to never thinking of the matter of women and power in "that light" before when Billali, one of the main tribal leaders, states that "In this country, women do what they please. We worship them, and give them their way, because without them the world could not go on; they are the source of life" (Haggard 107). The fact that Holly never considered the possibility of a long-living nation under matriarchy displays the Victorian concept of masculine empire in itself, and the tribe's lack of stable patriarchy makes it a target for British influence.

This overwhelming sense of power stemming from Victorian essentialism was often attained through violence. Julia Reid suggests that the "violence of white adventures" into continents like Africa served as a "basis for imperial power" (162). The violence leading Englishmen into potential colonies was facilitated by Europe's industrialized weaponry, particularly guns, and She supports this idea on various levels. As displayed in the novel, the entrance of the Englishmen, Holly, Leo, and Job, into Africa led to a great deal of killing, and this hostility is associated with guns. Guns and aggression become an essential part of the Englishmen's success in the novel, and these factors even suggest a good deal of phallic symbolism reflecting white sexual hierarchy. According to John Kucich, Haggard's work has always faced extensive criticism for depicting colonial exploitation in a sexual manner (102). Thus, it is no coincidence that the men's destination is marked by a rock shaped like a man's head; Holly thinks it beneficial to "make this mysterious rock with a man's head and begin [their] shooting" after which Leo replies that the land is swampy and "full of snakes" (Haggard 54). Through this excerpt, *She* incorporates the use of two phallic symbols, guns and snakes, to further describe the landscape that has already masculine characteristics like the "man" shaped rock. These symbols suggest violence, including sexual violence, as a major factor in British colonization.

The colonial notion of violence made its way across the globe through various forms of exploitation. Consider the concept of white male dominance over the African terrain in the form of big game hunting throughout the novel. This element of Haggard's novel adds a sense of blood lust and brutality that is often associated with masculinity. For instance, upon arrival in Africa, the Englishmen spot a waterbuck that is described in a majestic manner, but even upon their admiration of it, they shoot and kill the animal for sport: "Leo was the first to catch sight of [the waterbuck], and being an ardent sportsman, thirsting for the blood of big game . . . We got out of the boat and ran to the buck, which was shot through the spine and stone dead" (Haggard 66, 67). In this graphic scene, the men disrupt a natural African scene through a bloody display of power over the land. Reid highlights the significance of this passage by stating, "the heroes' first action on African soil is to shoot a buck: Leo, an 'ardent sportsmen,' is described as 'thirsting for the blood of big game, about which he had been dreaming for months'" (159). Through these initial violent interactions with the African landscape through the use of guns, the novel begins with a true sense of white male dominance, and the African continent serves as the biggest game prize for colonial hunters such as Holly and Leo.

Another factor illustrating *She*'s masculine sense of empire is the utilization of Horace Holly, a white male, as the novel's narrator and sole interpreter of history. Through the narrative frame of Holly's retelling, the novel presents history through a male lens, much like that of the British Empire during the Victorian era. According to Shawn Malley, the layering of male history in the text provides insight into *She*. Malley argues that the "nested narrative" in the novel creates a link between the past and present (278). Aside from repeatedly uplifting the successful histories of predominately white cultures, particularly England's, Holly subtly degrades nonwhite nations and their histories, insisting that they are unsuccessful in relation to their white counterparts. For example, Holly states that "'[a] country like Africa . . . is sure to be full of the relics of long dead and forgotten civilizations. Nobody knows the age of the Egyptian civilization, and very likely it had offshoots'" (Haggard 63-64). Here, Holly suggests that African civilizations have not only died or failed to expand, but he also implies that they are not worthy of being remembered. Through the course of the novel, Holly speaks of the history of Africa condescendingly, while at the same time suggesting the progression of the British. Instances such as this in She effectively reflect Victorian views on the British Empire in terms of global power, which was seen as a result of masculine power within England and lack thereof in surrounding nations.

While Holly's knowledge of language and history serves as a contrast to the limits of nations that were colonized by the British, the history of the successful male lineage of Leo also plays a significant role in the novel's idea of male empire. A sherd, a broken piece of pottery, is presented that displays Leo's royal lineage quite extensively. Malley mentions the details of Leo's lineage as follows: "Engraved on the reverse side of the sherd is a chronicle of Leo's ancestors ('made by different hands and in many different ages'), who successively resided in Egypt, Greece, Rome, France, and, ultimately, England" (281). In fact, this emphasis on the importance of the recording of Leo's successful lineage is one of the determining factors in creating the novel's masculine-focused atmosphere. The primary focus on Leo's male lineage and lack of clear female lineages in Haggard's novel obviously set the standard for patriarchy. In other words, the patriarchal focus of the novel through Leo's male lineage further suggests the masculinity of empire by presenting a total ignorance of successful female lineage or matriarchy. While Ayesha, the white African queen in *She*, has ruled her nation fruitfully for centuries, she has only done so while never having come in contact with the threat of true patriarchy. When contact with the British Empire does occur through Leo, her own empire slowly weakens and eventually falls. In terms of empire as whole in She, success is linked to men.

The link between men and success through Leo and Holly sets the stage for further examination of the absence of female history in the novel. Patricia Murphy openly admits that the majority of the novel focuses on "recording male rather than female history," especially in the earlier parts of the novel (753). Murphy also claims that, as opposed to the clear connection between masculinity and history in the initial chapters of *She*, Ayesha is presented with a lack of historical knowledge or consciousness, arguing, "Ayesha aligns herself with the remote past" through her knowledge of dead languages (757). Unlike Ayesha, Holly displays limitless knowledge of history and efficient utilization of countless foreign languages. This association with Ayesha and the disconnected, unsuccessful aspects of the past could reflect Victorian ideas about women's lack of ability to associate with progression and successful parts of history, quite unlike the Victorian male. Through the idea of successful history presented in the novel, women play no significant roles. Therefore, this lack of history behind women further masculinizes empire and sets the path for gender essentialisms in the work.

The portrayal of women in *She* reaches further than their implied lack of history. In fact, the novel's concept of empire is misogynistic, reflecting Victorian ideals pertaining to women and power. It is necessary to first reflect back on the excerpt mentioned previously about the tribal women of Amahagger. Moments after Billali informs Holly of the high status of the tribal women, he follows up with how

the Amahagger men still hold them in their place. In fact, Billali states that after a few generations, the men perform a mass killing of the older women in order to "show them that [the men] are the strongest" (107). From this quotation, it can be concluded that even the Amahagger tribe that holds women to such a high standard, and which is ostensibly matriarchal, still conforms to patriarchy. In this way, the novel presents only a false matriarchy and strongly suggests misogyny. This tribal group has survived for many generations by keeping the women in their place. Additionally, these African women posing with sexual freedom and wildness create anxiety for the Englishmen in the novel, particularly Job. Still early on in the story, one of the older women of the tribe publicly approaches and kisses Job during a meal, and Job reacts with terror at her forwardness (Haggard 85). It is clear that Job disagrees with such wildness and sexual power being present in women, which threatens colonial ideas of masculinity. Women are merely another object to conquer. In this way, Victorian gender ideals expand from small-scale England into a larger colonial scale in Africa, much like they did historically through British imperialism. Victorian ideals circulating around women and power can be further examined through Ayesha, the white queen of the Amahagger tribe. Regardless of Ayesha's immortal existence and old age, she successfully represents what is widely known as the new rising woman of Victorian society. Regardless of Queen Victoria's status during the Victorian era, the patriarchal nature of the British Empire was strong; however, this is not the case in the depths of Africa under Ayesha's reign. According to Patricia Murphy, "H. Rider Haggard's 1887 *She* is not merely an intriguing exemplar of the male quest romances that mirrored and furthered imperialist initiatives, as critics have persuasively asserted, *She* is also a thinly disguised allegorical admonition to recognize and dispel the threat that the New Woman posed to late Victorian society" (747). Throughout the course of *She*, females serve as a source of great anxiety, and Ayesha, in her state of power over a partially patriarchal tribe, serves as the ultimate threat and representation of female progress. Ayesha killed her lover, Kallikrates, which would strike fear in any man: "'Oh Kallikrates,' [Ayesha] cried, and I trembled at the name, 'I must look upon thy face again, though it be agony. It is a generation since I looked upon thee whom I slew—slew with mine own hand'" (Haggard 152). Through this violent action, Ayesha confirms Victorian anxieties about powerful and influential women. A Freudian reading of the murder leans towards male castration anxiety, which brings forth the fear of physical loss of manhood, and in turn the masculinity of empire. Ayesha's killing of Kallikrates serves as a marker of this anxiety about the rising woman, which "switches between meek female and diabolic presence" (Murphy 748). In terms of the novel, this anxiety exists mainly because Ayesha's reign lasted for thousands

of years through terror and violence, but also mirrors Victorian views pertaining to matriarchy.

At the end of novel, Ayesha dies quite unexpectedly after thousands of years of ruthless ruling. Ayesha leads Holly and Leo underground into a passage where the "Fountain of Heart and Life" resides, which gushes forth from the ground and grants eternal life to those who pass through it (Haggard 252). Ayesha wishes for Leo, whom she has identified as the reincarnation of Kallikrates, to walk through the fountain in order to become immortal and rule alongside her. She yearns for Leo, and kisses him on the forehead before entering the flames as a physical display of her desire (Haggard 255). By submitting to Leo, Ayesha abandons her reliance on female power. Her mindset towards Leo opens the gateway for a new empire. In order to prove the safety of the fountain, the queen steps into it first, at which point Holly states, "on the very spot where more than twenty centuries before she had slain Kallikrates the priest, she herself fell down and died" (258). With the manner of Ayesha's death taken into consideration, the novel offers a strong message about gender and the British Empire. Regardless of how powerful Ayesha was as a female ruler, she eventually fell at the hands of her own female folly by letting her desire for Leo blind her from her true duty as a ruler. In this way, the death of Ayesha in *She* creates a very negative image for women and the power of empire. Not only does it suggest that women should not hold power, but it also implies that the feminine mindset is weaker than that of men; therefore, only masculine characters can be completely successful at imperializing. The men, particularly Leo, essentially overpower Ayesha, making the novel's final suggestion about male power in relation to empire.

Once they arrive in Africa, the novel's English explorers, Holly, Leo, and Job bring with them the Victorian mindset revolving around race and gender that allow them to slowly decimate the surrounding culture. These standards held by the Englishmen in the novel effectively reflect those that drove the British Empire for centuries on end. In his late Victorian poem, "White Man's Burden," Rudyard Kipling writes, "Take up the White Man's burden, Send forth the best ye breed / Go bind your sons to exile, to serve your captive's need" (1-2). Kipling's words fully summarize the concept underlying Haggard's *She*, as well as the British mindset during the Victorian era. As a whole, through the exploitation of African lands and destruction of the novel's powerful female queen, Ayesha, Haggard's *She* insists on white masculinity as the power source of successful empire.

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An Introduction of Knapp's Relational Stage Model & Walker's Cycle of Violence in Intimate Partner Violence Relationships

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According to the module created by Knapp, intimate partner relationships develop and fall apart in a series of stages (1978). However when an intimate partner relationship has certain precursors for becoming a violent relationship, violence can or does occur and continues as a cycle according to Walker (1979). Therefore, the present study examines (I) precursors that can affect future relationships and (II) how Knapp and Walker's modules interconnect in stages of relational development and regression (Knapp, 1978; Walker, 1979). The aim of this study is to address the research question, "How can Knapp's Relational Stage Model pertain to Walker's Cycle of Violence in terms of intimate partner violence in relationships?" Data was collected through reviewing literature and reports, and participants were interviewed to collect responses. Limitations were exposed through the data that was collected, and a critique was created to use in future research efforts. This study was conducted in a shelter for women escaping domestic violence in a metropolitan area in the southeast region of the United States. The study site was selected for its convenience and accessibility because at the time of research I was a full-time employee at the study site. The study site was in a conference room located at the shelter and the data was collected over a two week period in May of 2014.

revious studies set out to further understand Knapp's Relational Stage Model (See Appendix A for additional information regarding Knapp's Relational Stage Model) (Knapp, 1978). There have also been previous studies examining Walker's Cycle of Violence in intimate partner violence relationships (See Appendix B for additional information regarding the Cycle of Violence); however, no previous studies have compared the two modules of relational development and regression (Walker, 1979). To further understand how these two modules connect to one another, evaluations and comparisons of each module's stages were conducted through interviews with victims of domestic violence and henceforth recording and comparing their responses to Knapp's Relational Stage Model (1978). The aim of this study was to address the question, "How can Knapp's Relational Stage Model be pertained to Walker's Cycle of Violence in intimate partner violence in relationships?" By combining the two modules we can gain insight into the lives of domestic violence victims, and help create a pattern for people that are in relationships so they can easily recognize warning signs.

Even in modern times, there is little understanding of what exactly happens in an abusive relationship, and more data is needed for prevention. "Intimate partner violence" includes actual or threatened physical or sexual violence of psychological and emotional abuse directed toward a current of former dating partner, girlfriend or boyfriend, or spouse (Saltzman, Fanslow, McMahon, & Shelley, 2002). Additionally, the term "violence" usually refers to specific acts, whereas "intimate partner violence" usually connotes attempts to dominate or control a partner that results in harm (Saltzman et al., 1991). In a recent study completed by the Centers for Disease Control and Prevention, more than 1 in 3 women and more than 1 in 4 men in the United States have experienced physical violence, rape, and/or stalking by an intimate partner in their lifetime (Black, et al., 2011). This statistic alone demonstrates the need for more education and prevention on the issue of intimate partner violence.

LITERATURE REVIEW

One of the first researchers to discuss the stages in relationships of coming together and falling apart was Davis (Davis, 1973). Davis' research included only two stages: kinematic and phenomenological. Eventually the stages that Davis created and described were more specifically conceptualized by Knapp (Knapp, 1978). Knapp created five stages of coming together: initiating, experimenting, intensifying, integrating, and bonding; these stages are also known as the escalation stages (1978). Knapp's stages of falling apart included: differentiating, circumscribing, stagnating, avoiding, and terminating; these stages have been termed the de-escalation stages (1978).

In 1979, Lenore Walker interviewed 1,500 women who had been involved in intimate partner violent relationships, and Walker discovered that there was a similar pattern of abuse; she named this pattern the Cycle of Violence. Initially, Walker found that the cycle of abuse described the controlling patriarchal behavior of men who felt that abusing their wives was their duty in order to control them (1979). This cycle can occur hundreds of times before there is some sort of intervention as Walker suggests (1979). However, the cycle is somewhat flawed because it only examines a relationship where the man is abusive to the woman. There are obviously relationships that require examination wherein the woman is the perpetrator. Also, data on homosexual relationships should be collected. Until this study has been completed we cannot fully understand intimate partner violence and its full spectrum. However, I chose to compare Walker's cycle to Knapp's relational stages because, as a researcher, I only have interview access to women who have been victimized by a male significant other (1979, 1978).

A better understanding of what would cause a normal relationship to evolve into an aggressive, violent relationship will be required to determine where the problem stems from. Many of the Cycle of Violence hypotheses suggest that a history of abuse and neglect as a child predisposes that child to act violently or to be victimized later in life. In one study that was conducted to update Lenore Walker's Cycle of Violence theory showed that being abused or neglected as a child increased the likelihood of arrest as an adult by 28%, as a juvenile by 59%, and for a violent crime by 30% (Samuels, 2001). "If violence is begotten by not only violence, but also by neglect, far more attention needs to be devoted to the families of children who are abandoned and severely malnourished" (pg. 1, 2001). Research by Nicholas and Rasmussen (2006) also suggests that abusive and supportive behaviors were also significant predictors, relative to the sex of the parent and the sex of the participant. Predictors included if the child would demonstrate depression, aggression, and/or substance abuse in their adult life.

Communication is the foundation of a relationship between two people and it is the basis of the studied material to combine Knapp and Walker's modules (1978, 1979). A link that is important to recognize is the difference between verbal communication that becomes aggressive, and that which eventually evolves into physical violence. One study suggests that couples who are able to communicate effectively when under stress and can manage and/or reduce the stress, will not become verbally hostile (Bodenmann, Meuwly, Bradbury, Gmelch, & Ledermann, 2010). Verbal aggression almost always is an antecedent of physical violence. In a study of more than 600 intimate partners, verbal aggression was displayed by 75% of men, and 80% of women (Jan & Burke, 2005). According to different study, negative verbal communication that occurs during a conflict has also

predicted the deterioration of relationship satisfaction, which takes us back to Knapp's falling apart stages (Beebe, Corenelius, & Shorey, 2010) (1979). Through my research we will discover just how normal intimate partner relationships evolve from normal to violent.

METHODOLOGY

Study Design

Research for the study was conducted through a mixture of methods and approaches. The narrative approach was utilized by collectively combining my participants' stories into the data already collected by Knapp and Walker (1978, 1979). The case study approach was utilized by comparing Knapp's and Walker's models to that of participants of this study (1978, 1979). With this approach I am able to highlight the mutual but different experiences of each individual involved in the study. In examining both models, there is also a chronological method because there is a cycle or continuance of violence in the participant's life.

Study Population

For this study, all participants were female. These participants' ethnicities included: one Hispanic woman, four Caucasian women, and five African American women. Five women were between the ages of eighteen and twenty-five, three women between the ages of twenty-six and thirty-five, and two women between the ages of thirty-six and older. This population is appropriate for this study because in the majority of intimate partner relationships, women are the victims and men are the perpetrators (Black, et al., 2011). The population excludes homosexual intimate partner relationships, and excludes men who were victimized by the women in the relationship.

Data Collection Methods and Process

In order to collect the necessary data, ten separate in-depth interviews with each participant were conducted. Recruiting participants was an uncomplicated task because of my role as a gatekeeper for this organization due to employment, and because of my deep involvement outside of employment. Participants volunteered willingly after the study was announced to all the women in the shelter. Participants did not feel obligated to or forced to volunteer for this study. Eventually the recruitment snowballed: the original plan was to interview six women, but others wanted to share their stories after hearing about what kind of research was being done. During the interview process, each participant was recorded, and their information was transcribed for further analysis. Throughout this process I was able to gather detailed data on sensitive issues, including the participants' motivation for behavior and that of their past intimate partners. By combining the data, I was

able to apply their relational stages to Knapp's and Walker's theories (1978, 1979).

Interview and Group Discussions

Interview questions were designed to reflect the research question, and the participants' answers were compared to theories researched. Additionally, the questions represented the theories of relational development and falling apart. Questions regarding participants' stages of coming together and falling apart were asked, as well questions regarding their returning to the abusive relationship. (See Appendix C for further information regarding the interview questions.) Responses from the interview were video recorded and field notes were collected as well. Evidence of interviews, actual recordings, and field notes were destroyed after research was completed. Interviews were transcribed by listening to the recordings and by manually typing all questions and responses at the concurring time. An ethical issue that arose during my study was securing information of a confidential nature, while still publishing relevant information. Participants' names have been changed to conceal their identities

Data Analysis, Quality, and Study Limitations

Utilizing the inductive and deductive analytic comparison approach, data was analyzed by comparing Walker's and Knapp's modules to the answers given by participants during interviews (1978; 1979). Data was also compared to the inductive issues revolving around the research question. Data quality reached saturation due to the size and timeline of the research project. To gain a better understanding, research would need to be completed with a larger variety of demographics: race, age, sex, and orientation. The limitations of my study were caused by the number of women currently in the shelter, and a lack of diverse demographics. The strengths of this study allowed for a personal insight into the lives of women from the region who have been in intimate partner violent relationships.

RESULTS

As a result of this study, I encountered different intertwined relationships and emotions during the different stages. Each stage of discovery is addressed and issues are discussed chronologically. Findings are presented in this manner to create a visual cycle for the reader, and to demonstrate the different stories of participants interviewed.

Initiating and Experimenting

During the interview process the goal was to determine how the participants' relationships started. The beginnings of their relationships became particularly important, since it was postulated that participants would not have known their perpetrator well before entering into an intimate relationship. Six out of ten participants met their perpetrator via online social media, and four out of ten participants met through mutual friends and groups. The participants that met through social media also reported that these were not their first relationships originating from social media. All participants reported that the relationship began by communicating through text messages, phone calls, and hanging out in groups of mutual friends after meeting online. Participants who met their partner through friends also reported that their friends tried to warn them when they first showed signs of interest in their partner. These participants also communicated and initiated the relationship through text messages, phone calls, and emulsion in groups of mutual friends.

When entering into the experimenting stage of the relationship, all participants reported attending at least two dates before the intensifying stage (1978). Participants entered this stage on average three weeks into the relationship. The participants also reported feelings of hopefulness for a future relationship, and no negative or critical comments were made to them or about them. In later stages, negativity is the only reported data within the relationship.

Intensifying, Integrating, and Bonding

At this point in Knapp's relational model, a clear interpersonal relationship has been formed, as well as an intimate relationship (1978). Participant Sally stated, "It felt like a roller coaster of positive emotions, and I couldn't get enough of the adrenaline rush. We both fell hard and fast for one another, and I thought that it was perfection." Other participants had feelings of being, "addicted" or, "smitten" as well. Results showed even in this stage there were no warning signs for what was to come in the future.

Participants eventually integrated with their partner, by forming a monogamous relationship (1978). As a couple, they would attend special events together or socialize on group dates. However, in this stage, participants first noticed signs that their partner was a bit controlling, or always, "had to have it their way." Participant Kayla explained, "At first he just acted overly jealous of me and who I would be around. Later it turned into, "You can't hang out with your friends because I want you all to myself" or, "You can't go to town because I worry about you driving." I cared for him and I wanted our relationship to work, so I would just brush off those things by thinking that he just

really cares about me. In reality though, that was just the beginning of him trying to confine and control my life."

During the bonding stage, six out of ten participants simply moved in with their perpetrator, two out of ten participants had a child with their partner who bonded them together, and the remaining two participants bonded by engaging and then marrying (1978). On average, the bonding stage happened nine months into the relationship. Participant Mary said, "I rushed into this relationship and had to suffer for years for that irrational thinking at the time. I've always felt pressure to settle down and start a family, and as long as he looked good on paper then he must be an okay guy. I've never really understood how I was so blind to who he really was because as I look back now, there were so many warning signs."

Differentiating, Build-Up Phase, Stand-Over Phase, and Stagnating:

In Knapp's differentiating stage, couples often experience their first major stressor (1978). This stressor often is in regards to finances, problems at work, a loss in the family, etc. Normal couples in healthy relationships can manage this stress by handling it effectively through communication. Whenever stress is added to a relationship that is already unhealthy, stress influences other elements of the cycle. In the build-up phase, stress is the beginning of verbal, emotional, mental, and physical abuse (Walker, 1979). Participant Mackenzie talks about how her relationship was whenever money was an issue, "Having financial problems develop caused a huge amount of stress on my past relationship and we would always get into these screaming matches. Eventually, the screaming turned into calling each other horrible names, and saying things just to hurt one another."

All participants reported that before the physical violence there was the verbal, emotional, and mental abuse which almost always goes unrecognized. There was a period in time for them before the physical abuse where they would have the same arguments repeatedly, participants couldn't do anything right, and their perpetrator would look for anything to initiate an argument. In Knapp's stagnating stage, couples often argue about the same topics and the relationship ceasing to grow (1978). Many victims feel as though they were walking on egg shells, and in Walker's Cycle of Violence this is also known as the stand-over phase (1979).

Explosion, Avoiding, and Remorse

The explosion stage is the point in time when the physical violence occurs between the participant and their perpetrator (1979). Participants each had different responses as to what the physical violence would include. Participant Ashley stated, "The physical violence was worse than anything else, but there were times too

where what he would say to me would hurt worse. When things did get physical sometimes it was just a shove or it could involve him beating me until I was unconscious." The way she described some of the events led to the belief that she believed certain forms of abuse was normal in relationships. A few other participants talked as if some of the abuse they went through was normal or to be expected as well.

After an explosion takes place, victims will often avoid their partner and continue on with the relationship, or the victim will terminate the relationship (1979). The perpetrator will even leave in order to avoid what they have done, or simply avoid their partner all together. Participants recounted the length of time they endured avoiding one another. On average the participants would try to avoid their partner, however he would be back within the next day. Once a perpetrator returns to the relationship he is typically remorseful, which is the next phase in Walker's Cycle of Violence (1979). Perpetrators feel extremely guilty for their actions, and will try to justify those actions by blaming the abuse on the stress experienced in the differentiating and build-up phase previously discussed (1979). During the remorse stage, the perpetrator decides that he will have to make up for his actions and will then enter into the pursuit phase (1979).

Pursuit, Honeymoon, and Terminating

During the pursuit phase in Walker's cycle, the perpetrator thinks that damage that has been done to his partner can be resolved by buying materialistic things or by doing things the victim has asked of him before the explosion (1979). Participant Kasey describes what this stage felt like, "After my husband would feel guilty, he would always try to do things to win me back. I had been begging him for years to remodel my kitchen and after one of the worst times he's ever beaten me, we went to Lowe's and picked out every single thing I wanted in the kitchen and it was remodeled. Of course, I couldn't go in public until the bruises on my face went away, but he acted like I was just supposed to forget what he done to me. And eventually the bruises did go away, and we were back to our normal lives just because of my ignorance, well at least until the next stressor occurred."

If the victim doesn't terminate the relationship immediately after an explosion, the couple will eventually enter into the honeymoon phase according to Walker (1979). The victim and the perpetrator forgive each other for the wrongs committed, or choose to ignore how unhealthy the relationship is. No matter how the couple decides to deal with the abuse, they enter back into somewhat of an intensifying stage again which was evident from the results produced. Participants stated that when they would forgive their partners and try to move on, for some time they would re-experience the "roller-coaster" of emotions again for their partner.

There was a distinct connection between the honeymoon phase and the intensifying stage because of the emotions being connected (1978; 1979). There was also a connection identified between the terminating stage and the pursuit phase (1978; 1979). When a victim would leave, whether it is the first time or the tenth time, during the pursuit phase the perpetrator would stop at nothing to make the relationship right again. This is where the stalking of a participant would occur and eventually the participant would take action by obtaining a protection order or return to the situation again. If the victim returns, they are likely to relive this cycle hundreds of more times (1979).

Precursors to Intimate Partner Violence and Education

Participants were also questioned regarding their childhood and how their parents treated one another. Six out of ten participants said they came from an abusive household, or was neglected as a child. Nine out ten participants also reported that their perpetrators came from abusive families. Participant Amy stated, "I've never known what a 'normal' relationship was because I grew up in a home where my father beat my mother every single day and would sometimes beat me and my siblings. I guess you could say that's why I'm in the situation that I'm in now." All participants interviewed felt that if there had been more education starting in school on healthy relationships, they would not be in the situation they were in now.

DISCUSSION

When examining the results from my study, I have learned that there is an interconnectivity of Knapp's relational stages of coming together and falling apart and Walker's Cycle of Violence (1978; 1979). These connections were made by participants feeling the same emotions in the end as in the beginning, and continuing a cycle that only they could choose to end. I did not expect to find as many similarities as my results provided though. All of the women interviewed expressed feeling the same in the stages of coming together and of falling apart, however there is a gray area as to when the victim decides to stay in the relationship despite falling apart completely.

Results from my study proved that stress was the biggest precursor to causing a normal relationship to evolve into a violent relationship. Stressors could be defined as issues with finances, doing a task incorrectly, being laid off at work, and/or just the general stress of taking care of a family. These examples of stress impacted the lives of the victims in the relationship harder than stress normally would because they knew consequences or abuse would surely follow. Some participants also discussed how they, or their perpetrator, came from an abusive home, which in turn largely affected how they perceived

what a normal and healthy relationship should be. An abusive home in my research could be defined as a home where the child was a witness to physical and emotional abuse between parents, and/or the child was a victim of physical and emotional abuse.

With these new interpretations and my results, I hope to combine my research with that of others in order to gain and publish better data regarding the cycle of violence in intimate partner relationships. In the future, using the data I collected, I would like to create a more informative combination of the two modules used in this research. Participants felt that if they had been better educated and informed on intimate partner violence and the difference between healthy and unhealthy relationships, they would not have been in a violent relationship.

CONCLUSION

This goal of this study was to collect better data regarding relational development and regression by using Knapp's model and to relate it to the continuing cycle of violence by Walker (1978, 1979). The data is accessible to further any research done, and to provide additional education on intimate partner violence in the hopes of preventing those unhealthy relationships. Comparisons and contrasts were examined to connect the two modules to the responses and lives of the participants in the study. The study population may have been small; however this study and the results produced give a voice to the muted group of victims in those violent relationships. The data collected will enable the audience to understand the views of the participants in their own words.

Limitations and implications were present during the time of the study. Saturation was met accordingly to the size of the project and the amount of given time to complete the research; the time restraint in itself was a limitation for the study as well. The population selected could have been more diverse demographically, but the main limitation was the amount of victims in the situation at the present time. Collection of data was completed exclusively through the interviews conducted and other collection methods could be used. After recruiting some participants via the snowball effect, those participants also entered the interview with knowledge of what questions could be expected and may have formed predispositions that affected their responses. Another limitation encountered was the study only examined female victims and male perpetrators. Overall intimate partner violence can occur in any relationship regardless or the demographics; the biases that surround only women can be victims and men are perpetrators is why data goes unreported. Therefore the results of this study can only be applied to similar contexts. Other limitations included confidentiality of the women and their stories; no information was disclosed that could be used

to identity participants and all names used had been changed from the original.

With the intent of furthering education on intimate partner violence in relation to Knapp's and Walker's modules, further research will be necessary (1978, 1979). The study population will need to consist of a larger demographic scale and have more participants involved. Participants also need to be selected in a setting where they will not be exposed to interview questions before the interview. In order to do research correctly and without haste, a longer period of time will be essential as well. In this study participants were only interviewed if they had been in an intimate partner violent relationship, however in future research participants will also need to be from normal relationships as defined by Knapp's model (1979).

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APPENDIX A: KNAPP'S RELATIONAL STAGE MODEL
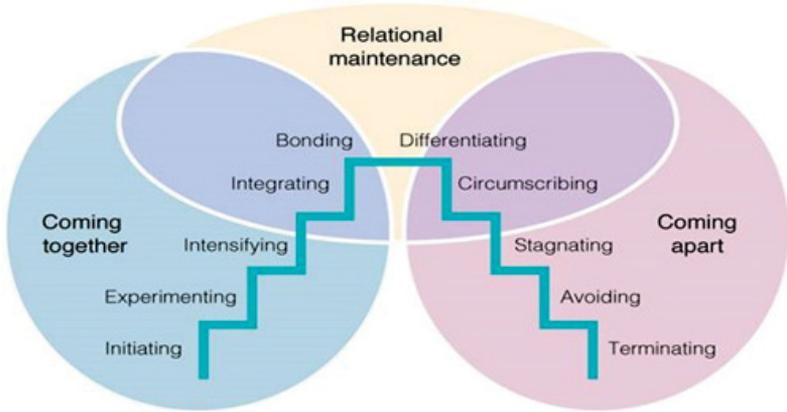
### **Stages of Coming Together:**

1. **Initiating:** *Making initial contact, conversation openers.*
2. **Experimenting:** *Get acquainted by making small talk, learn about each other; pleasant & uncritical.*
3. **Intensifying:** *Truly interpersonal relationship; expression of feelings, more touching, familiar forms of address*
4. **Integrating:** *Take on an identity as a social unit: we/us; take on each other's commitments, share common property, spend holidays together, and develop own customs & habits for daily routines to intimacy.*
5. **Bonding:** *Symbolic public display of relationship, weddings, legal ties, declaration of exclusivity*

Stages of Coming Apart:

1. **Differentiating:** *Reestablish individual identities; maintain commitment to the relationship while creating the spacefor being an individual; appears when relationship experiences first inevitable stress.*
2. **Circumscribing:** *Communication decreases in quantity and quality; restrictions and restraints characterize this stage; rather than discuss a disagreement, opt for withdrawal; interest & commitment wane.*
3. **Stagnating:** *Unenthusiastically have the same conversations and follow the same routines without any sense of joy or novelty; no growth; relationship is a shadow of its former self.*
4. **Avoiding:** *Create distance when stagnation becomes too unpleasant.*
5. **Terminating:** *Summary dialogues about where the relationship went and the desire to dissociate.*
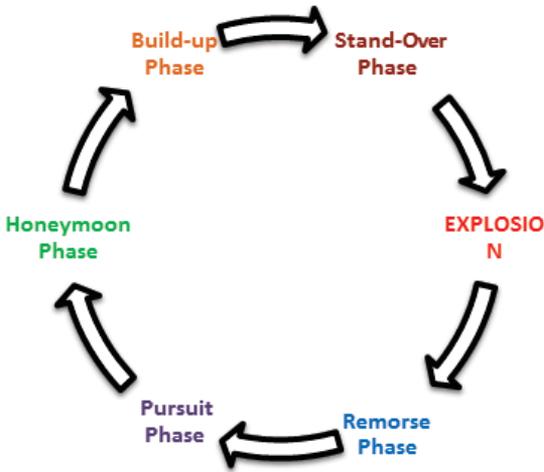
1.) Build-Up Phase:
This phase may begin with normal relations between people in the relationship, but involves escalating tension marked by increased verbal, emotional, or financial abuse.

2.) Stand-Over Phase:
The person affected may feel that they are 'walking on egg shells' and fear that anything they do will cause the situation to deteriorate further.

3.) Explosion:
Peak of violence in the relationship. It is the height of abuse by the person who uses violence to control and have power over others. The person who commits domestic and family violence experiences a release of tension during an explosion phase which may become addictive.

4.) Remorse Phase:
The person who uses abuse in their relationship feels ashamed of their behavior. They retreat and become withdrawn from the relationship. They try to justify their actions to themselves and to others, unaware they are addicted to the release they just experienced.

5.) Pursuit Phase:
The victim is promised that the violence will never happen again. Abuser tries to make up for their past behavior by blaming it on other things. The abuser may purchase gifts and give more attention.

6.) Honeymoon Phase:
Both people in the relationship may be in denial as to how bad the abuse and violence was. Both people do not want the relationship to end, so are happy to ignore the possibility of violence reoccurring. After some time, this stage fades and the cycle begins again.

APPENDIX C

Background Information / Opening Questions:

1)   Name:
2)   Race:
3)   Age:
4)   Occupation:
5)   Partner's Occupation:
6)   Length of Relationship:

Key Questions:

1)   Can you tell me about how you and your intimate
        partner met?
2)   What was your childhood home like?
3)   What was your partner's childhood like?
4)   When and how did your relationship begin to intensify?
5)   When and how did you do things as a couple?
6)   What things as a couple did you do to bond and get closer
        to one another?
7)   As a couple did you ever talk about marriage and the future
        together? If so, what exactly?
8)   When did you first notice any problems in the relationship?
9)   When did normal communication end?
10)   How and when did verbal abuse begin?
11)   How and when did physical abuse begin?
12)   When did stop experiencing joy and growth in this
        relationship?

Closing Questions:

1)   Did you have the same arguments repeatedly? If so, what
        about?
2)   Did these argument lead to abusive situations?
3)   How did you avoid your partner without terminating?
4)   When did you decide to continue the relationship after
        abuse, and what factors contributed to that decision?
5)   Have you left this relationship previously? If so, how
        many times?
6)   What made you eventually decide to end the unhealthy
        relationship and seek help?
7)   Do you think more education on intimate partner violence
        would have made your situation better? How so?

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